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Journal of the Society of Arts.**FRIDAY, JUNE 27, 1856.****FIFTH ANNUAL CONFERENCE.**

THE Fifth Annual Conference between Representatives from the Institutions in Union and the Council of the Society, was held on Monday, the 23rd inst., at the Society's House, in the Adelphi. The Rev. Dr. Booth, F.R.S., Chairman of Council, presided. The following members of the Council were also present:—Mr. Harry Chester, Vice-President, and Mr. T. Winkworth.

The following is a List of the Institutions represented at the Conference, and of the names of the respective representatives:—

Barnet, Institute	Mr. Steph. J. Baldock
Battersea, branch of Belmont (Vaux-hall) Mutual Improvement Society	Mr. J. Witham
Bexley Heath, Society for the Promotion of Useful Knowledge	Mr. Flaxman Spurrell
Birmingham, Messrs. Chance's Library and Reading Room	Mr. F. Talbot
Boston, Athenæum	Mr. Jas. W. Bontoft
Brighton, Athenæum	Dr. Williamson
Bristol, Athenæum	Mr. E. Halsall
Bromley, Literary Institute	Mr. Shillocock
Burton-on-Trent, Literary Society	Mr. John Matthews
Carmarthen, Literary and Scientific Institution	Mr. David Morris, M.P.
Croydon, Literary and Scientific Institution	Mr. William S. Masterman
Deptford, Institution	Mr. David Bass
Greenwich, Society for the Acquisition and Diffusion of Useful Knowledge	Mr. David Bass
Hastings, Mechanics' Institution	Mr. John Banks
Hertford, Literary and Scientific Institution	Mr. John Marchant
Highgate, Literary and Scientific Institution	Mr. James Yates, F.R.S.
Holmfirth, Mechanics' Institution	Mr. John Hixon
Huntingdon, Literary and Scientific Institution	Mr. Robert Honey
Leeds, Mechanics' Institution and Literary Society	Mr. H. Gore and Mr. Thomas Wilson
" Yorkshire Union of Mechanics' Institutes	Mr. Barnett Blake and Mr. Th. Wilson
Lewes, Mechanics' Institution	Mr. Henry Browne
London, Kingsland, Dalston, and De Beauvoir Town Literary and Scientific Institution	Mr. Walter Rowton
" London and South Western Railway Literary and Scientific Institution	Mr. F. J. Macaulay
" London Mechanics' Institution	Mr. Saml. Valentine
" Royal Polytechnic Institution	Mr. J. C. Buckmaster
" Tailors' Labour Agency Literary Institute	Mr. J. A. Dunn
Loughborough, Literary and Philosophical Society	Mr. John Spanton
Lynn, Conversazione and Society of Arts	Mr. Henry Edwards
Morpeth, Mechanics' Institution	Mr. Matthew Soulaby
Oldham, Lyceum	Mr. W. J. Fox, M.P.
Plymouth, Mechanics' Institute	Mr. E. Lane

Poole, Town and County Library	Mr. E. Kemp Welch
and Literary Institute	
Portsmouth and Portsea, Literary and Philosophical Society	Mr. R. G. F. Smith
Reigate, Mechanics' Institution	Mr. T. Martin
Romford, Literary and Mechanics' Institution	Rev. W. Taylor Jones
Shelton, Pottery Mechanics' Institution	Mr. Smith Child, M.P.
Sidmouth, Institution	Mr. W. T. Radford
Wakefield, Mechanics' Institution	Rev. W. R. Bowditch
Wandsworth, Literary and Scientific Institution	Mr. Paul Blackmore
Winchester, Hants & Wilts Adult Education	Hon. and Rev. S. Best
" Mechanics' Institution	Mr. Henry Huggins
Yarmouth (Great) and Southtown Young Men's Institute	Rev. A. Bath Power, M.A.
York, Institute of Popular Science and Literature	The Lord Mayor of York (Mr. James Meek, jun.)

The Chairman called upon the Secretary to open the proceedings by reading his Annual Report to the Council.

MR. P. LE NEVE FOSTER then read the following Report:—

To the Council of the Society for the Encouragement of Arts, Manufactures, and Commerce.

GENTLEMEN,—The fifth annual Conference being at hand, it is my duty to lay before you the principal matters in which you have been engaged during the past year, in reference to the Union of Institutions. One of the subjects brought before the last Conference, and urged upon the attention of the Council, as specially required to facilitate the working of classes in Institutions, was the bringing out text-books, adapted for the use of members of such classes. Much consideration was given to this point; but it was found that to make any attempt of the kind would only be of little value, inasmuch as already text-books were numerous, and it was thought that greater service would be done the Institutions, if those books already published could be brought more readily within the reach of those requiring them. The Council, therefore, determined at once to endeavour to obtain from the Committee of Privy Council on Education, in favour of classes in Institutions, the same reduction in the purchase of books and educational apparatus as is now granted to schools under inspection. A deputation, consisting of Mr. W. Ewart, M.P., the Rev. Dr. Booth, F.R.S., Chairman of Council; Colonel Sykes, F.R.S., Mr. G. F. Wilson, F.R.S., Mr. Winkworth, and the Secretary, accordingly waited upon Earl Granville, the President of the Privy Council, and the result has been that their Lordships have been pleased to assent to the Society's request, and grant the privilege to Institutions where classes of a scholastic character are established. In granting this privilege the Committee of Privy Council have laid down the following conditions, viz.:—

That the secretary of the Institution should, in each case, correspond directly with the Committee of Council, but with the application he should file a certificate from the secretary of the Society of Arts, stating that the Institution is in union with the Society of Arts, and that the Council of the Society recommends its application, it being understood, that no classes will be recommended to the Committee of Council except those in which regular instruction is the characteristic feature; that the classes will be open to the visits of her Majesty's Inspectors; that, if scientific apparatus be applied for, a competent lecturer will be engaged, *i.e.*, that the class will not depend for its scientific instruction upon itinerant lecturers alone; lastly, that the premises and furniture will be reasonably convenient for the purpose.

The lists, both of elementary school-books and of scientific apparatus, are at this time undergoing revision, for the purpose of being greatly extended. The revision of the lists is a work of some labour, and will not, probably, be completed for some time, and the Committee of Council do not think it will be advisable to admit this new class of cases until the new lists are completed and in use. The old lists would much more restrict the power of selection, and they have therefore requested that, at present, no steps be taken by the Council of the Society in the matter. As soon as the lists are completed, the Lord President will cause the Society to be informed that the Committee is prepared to receive applications.

The Council of the Society have urged upon the Committee of Council the great importance of these lists being quickly completed, and it is hoped that, in a few months from this time, the Institutions will be able to take advantage of the privilege. As connected with this topic, I may mention that correspondence has been received, in which it is suggested that the Council of the Society should urge upon the Committee of Privy Council on Education, the importance of assisting the Institutions with duly qualified class teachers. This, it is thought, might be done by the Committee of Privy Council granting to certificated teachers, when employed in class teaching, the same certificate allowances as they would be entitled to if employed in schools. This, I apprehend, is a matter that the Council will be ready to take up, should the Conference express its wish to that effect.

At the last Conference it will be remembered that a very decided opinion was expressed by the representatives that, notwithstanding the doubts on the subject entertained by the Council, some attempt should be made to obtain an amendment in the law relating to the exemption of Institutions from local rates, and a resolution was passed, earnestly requesting the

Council to take steps to procure an amendment of the law, and the Conference, at the suggestion of the Council, named some of their Representatives to be associated with a Committee of the Society, for preparing a Bill to carry out this object. Accordingly a Bill was prepared by counsel, under the superintendence of that committee, Mr. Hole and Mr. Traice, two of the members of it, having been communicated with in reference to the Bill; those gentlemen residing at Leeds, being unable to attend the meeting of the Committee.

It was thought that the object desired could be best obtained by getting rid of the word "exclusively" used in the existing Act. By the Bill it is therefore simply proposed to repeal the clause in the existing Act, and re-enact it, leaving out the word "exclusively." The Bill also goes to make the certificate of the barrister, and, or in the event of his refusing, and its being allowed on appeal, final, so long as the rules remain unaltered. This Bill has been taken charge of in the House of Commons by Mr. Hutt, Mr. Ewart, and Lord Stanley. It has, as is now well known, met with considerable opposition in the House. In consequence of that opposition its passing has been delayed. It will come on for discussion again on the 2nd of July, and it is recommended to the Institutions to use every exertion to obtain the assistance of their local Members of Parliament on the occasion. The Council will not fail to do all that lies in their power to get the Bill passed. It must, however, be remembered that the delay which the opposition has caused renders it doubtful whether, even if passed through the Commons, it will be in time to pass the House of Lords this Session. Previous to the introduction of the Bill into the House of Commons it was printed in the Society's *Journal*; communications on it were invited, but none were received. It is somewhat remarkable, looking at the great interest in the subject displayed at the last Conference, that no notice should have been taken of its provisions.

At the last Conference the importance of a catalogue of books fitted for the libraries of the Institutions was much urged on the attention of the Council, when it appeared that such a catalogue was in preparation as portion of a book about to be published by Mr. Traice, at the request of the Yorkshire Union of Institutions. This work has been submitted to the Council of the Society, who have with much pleasure given permission for the name of the Council, as sanctioning the work, to be placed on the title-page. The book, it is understood, is now ready for issue. It supplies not only the catalogue of books, but a great amount of other matter and information of value to the Institutions. The Council have resolved to present to each of the Institutions in Union a copy of this work.

In reference to the often discussed question of the Blue books, I would remind the Council that since the last Conference a serial work has just been commenced, entitled *Annals of British Legislation*, by Professor Leone Levi. In this work an abstract is given of all Parliamentary and other public documents, and thus to a very great extent is supplied that information, at a moderate charge, which it appeared to be the general wish of the Institutions at the last Conference to be put in possession of. During the past year, at the request of the Council, several Blue books have been presented to the Institutions, such as the 3rd Report of the Royal Commissioners for the Exhibition of 1851, the Report on the Re-organisation of the Civil Service, the Report of the Civil Service Commissioners, and others which it is unnecessary to particularise.

The subject of the List of Lecturers has, during the past year, received much attention from the Council, who carefully considered the various recommendations and suggestions made at the last Conference in reference to it. The List has now been published, and a copy has been sent to every Institution in Union, and it is believed that in the compact form, and on the principle now adopted, it will be found to be much increased in usefulness. I cannot do better than quote from the preface in order to show the principle adopted in its formation :—

"It will be noticed that this list differs in several respects from the two which have preceded it. In the first place, an endeavour has been made to separate the professional from the amateur and gratuitous lecturers, by dividing the list into two sections of paid and unpaid lecturers. Secondly, representations having been made at the Annual Institutes' Conference, in July, 1855, that the lists, as previously formed, were not what they professed to be, comprising only selected lecturers, it was determined in this instance to depart from the plan hitherto followed—that of asking Institutions to "recommend" lecturers—and merely to request the names of any lecturers they might be aware of; so that the list should be, as far as possible, a complete directory, and a directory only. Institutions will therefore distinctly understand that the present list is not to be taken in any sense as a selected or recommended one. The Institutions whose names are annexed to any lecturer are simply added to facilitate reference and inquiry.

"This list contains all the names recently returned by the Institutions, except where the lecturer has requested that his name might be omitted, or where no address was given. Circulars were forwarded to all those lecturers contained in the previous lists, whose names were not returned by the Institutions on the present occasion. Those of the latter class only have been inserted who replied to this communication.

"Institutions will understand that, in the case of unpaid lecturers, as they are for the most part local, when they are asked to leave their own districts, expenses must always be offered."

In addition to the List of Lecturers, has been formed and printed with it, a List of Apparatus and Diagrams, adapted for the use of the lecturer and the class teacher. This List can do but little more than indicate where the apparatus and

diagrams can be obtained, and at about what cost. It will be evident that the Society could not print in detail the catalogues of the different publishers, and even had this been done, purchasers would still have found it necessary to make inquiries of the respective makers. This List has been got together by the Council, in accordance with the desire expressed at the last Conference, and though necessarily, to some extent, incomplete, it cannot fail to be of assistance to those seeking information in this direction. The Conference will probably express their views as to how far it meets the wants of the Institutions, and will offer suggestions for its improvement. Before I leave this subject I may state that, in communications received from two of the Institutions in Union, it is suggested that a central depot of diagrams, models, apparatus, &c., should be formed, from whence the Institutions in Union might get them on paying the expenses of transit, and guaranteeing to pay for any damage, &c. This probably will form the subject of discussion at the Conference.

It will be remembered that one of the objects laid down on the original formation of the Union in 1852, was, "that the Institutions be assisted to become also places of systematic instruction, with systematic examinations, and certificates of the results of studies." This the Society has endeavoured to carry out by establishing a system of Examinations. The first Examination was held in the Society's rooms on the 10th, 11th, 12th, and 13th of this present month of June, under the direction of an acting Board of Examiners consisting of the following gentlemen :—

Mr. Ball, Mr. John Bell, Dr. Bernays, Rev. Dr. Booth, F.R.S., Professor Brasseur, Professor Brewer, Mr. C. Brooke, M.A., F.R.S., Professor Browne, Mr. James Caird, Dr. W. B. Carpenter, F.R.S., Mr. F. S. Cary, Rev. S. Clark, Rev. Dr. Elder, Rev. W. Elliot, Mr. Glaisher, F.R.S., Professor Henfrey, F.R.S., the Dean of Hereford, Mr. G. H. Jay, Dr. Bence Jones, F.R.S., Mr. J. C. Morton, Rev. A. Bath Power, M.A., Mr. F. R. Sandford, Professor Solly, F.R.S., Dr. Stenhouse, F.R.S., Rev. F. Temple, Professor John Wilson, F.R.S.E.

There were 52 Candidates. The subjects in which the Examination were held were as follows :— Mathematics, Book-keeping, Mechanics, Chemistry, Physiology, Botany, Agriculture, Geography, English History, English Literature, (including English Composition and Writing from dictation,) Roman History and Latin, French, German, and Free-hand Drawing in outline from objects.

All the candidates were tested by a preliminary examination in writing and spelling, and unless this examination was satisfactorily passed the candidates were not allowed to attend the other sections of the examination. Of the 52 candi-

dates two only were rejected on this head. The Examiners have been much gratified to find that in the greater portion of the subjects the general standard of information disclosed is higher than had been anticipated. The Society's certificates are of three grades; the first for "Excellence," the second for "Proficiency," and the third for "Competency." The details, however, of the examinations, will be given in the Examiners Report. I will, therefore, only announce that the following certificates have been granted:—

IN MATHEMATICS.

CERTIFICATES OF EXCELLENCE.

Charles Chambers, Leeds Mechanics' Institution.
Benjamin Harrall, "Leicester Mechanics' Institution.
Edward Highton, "Bury St. Edmunds Athenæum.
Alfred Lister, "Leeds
W. Matthew Taylor, Windsor and Eton Literary and Scientific Institution.

CERTIFICATES OF PROFICIENCY.

Robert Abbott, Leeds Mechanics' Institution.
William Dawson, Boston Athenæum.
Francis Ford, Bury St. Edmunds Athenæum.
F. Marshall, Crosby Hall Evening Classes.
Wm. Wheaten, Leeds Mechanics' Institution.

CERTIFICATES OF COMPETENCY.

John Smurthwaite, London Tailors' Labour Agency Literary Institute.
James Ware, Greenwich Society for Diffusion of Useful Knowledge.

IN BOOKKEEPING.

CERTIFICATES OF EXCELLENCE. (None.)

CERTIFICATES OF PROFICIENCY. (None.)

CERTIFICATES OF COMPETENCY.

Robert Abbott, Leeds Mechanics' Institution.
Daniel Leggatt, London Mechanics' Institution.

IN MECHANICS.

CERTIFICATES OF EXCELLENCE. (None.)

CERTIFICATES OF PROFICIENCY.

Robert Abbott, Leeds Mechanics Institution.
James Scotson, Greenwich Society for Diffusion of Useful Knowledge.
Samuel Chas. Tisley, London Mechanics' Institution.

CERTIFICATES OF COMPETENCY.

Charles Chambers, Leeds Mechanics' Institution.
William Dawson, Boston Athenæum.
Alfred Lister, Leeds Mechanics' Institution.
Daniel Leggatt, London Mechanics' Institution.

IN CHEMISTRY.

CERTIFICATES OF EXCELLENCE.

James Scotson, Greenwich Society for Diffusion of Useful Knowledge.

William Shepard, London Mechanics' Institution.

CERTIFICATES OF PROFICIENCY.

A. J. Austen, Belmont Mutual Improvement Society.

Arthur Clarke, Crosby Hall Evening Classes.

CERTIFICATES OF COMPETENCY.

Alfred Lister, Leeds Mechanics' Institution.
John Jones, Reigate Mechanics' Institution.

Charles Aspull Wells, Lewes Mechanics' Institution.

IN PHYSIOLOGY.

CERTIFICATES OF EXCELLENCE. (None.)

CERTIFICATE OF PROFICIENCY.

Henry Shorthouse, Crosby Hall Evening Classes.

CERTIFICATES OF COMPETENCY. (None.)

IN BOTANY.

CERTIFICATES OF EXCELLENCE. (None.)

CERTIFICATES OF PROFICIENCY. (None.)

CERTIFICATE OF COMPETENCY.

Arthur Clarke, Crosby Hall Evening Classes.

IN AGRICULTURE.

CERTIFICATES OF EXCELLENCE. (None.)

CERTIFICATE OF PROFICIENCY.

Joseph Pollard, Hitchin Mechanics' Institution.

CERTIFICATES OF COMPETENCY. (None.)

IN GEOGRAPHY.

CERTIFICATES OF EXCELLENCE.

Wm. Mat. Taylor, Windsor and Eton Literary and Scientific Society.

Henry Wheeler, Pimlico Literary and Scientific Society.

CERTIFICATES OF PROFICIENCY.

W. J. Alderson, Liverpool Collegiate Institution.
James Burke, Camden-town Literary and Scientific Institution.

Edward Highton, Leicester Mechanics' Institution.
Alfred Lister, Leeds Mechanics' Institution.
John Smurthwaite, London Tailors' Labour Agency Literary Institute.

William Scott, London Mechanics' Institution.
Arthur Thompson, Great Western Railway Literary and Scientific Institution.

CERTIFICATES OF COMPETENCY.

John H. Corr, Crosby Hall Evening Classes.
M. H. Cromartie, Wandsworth Literary and Scientific Institution.

Thomas W. Downes, Pimlico Literary and Scientific Institution.

John Hams, Romsey Library and Reading Society.

Benjamin Harrall, Leeds Mechanics' Institution.
James Ware, Greenwich Society for the Diffusion of Useful Knowledge.

ENGLISH HISTORY.

CERTIFICATES OF EXCELLENCE.

Edward Badham, Crosby Hall Evening Classes.
Henry Ball, Belmont Mutual Improvement Society.

William Scott, London Mechanics' Institution.
James J. Shaw, Greenwich Society for Diffusion of Useful Knowledge.

William Matthew Taylor, Windsor and Eton Literary and Scientific Society.

Arthur Thompson, Great Western Railway Literary and Scientific Society.

James Ware, Greenwich Society for Diffusion of Useful Knowledge.

CERTIFICATES OF PROFICIENCY.

Robert Abbott, Leeds Mechanics' Institution.
W. J. Alderson, Liverpool Collegiate Institution.

James Burke,	Camden Town Literary and Scientific Institution.
Charles Chambers,	Leeds Mechanics' Institution.
Edwd. Geo. Clark,	Crosby Hall Evening Classes.
Elvery Dothie,	Ipswich Mechanics' Institution.
Edward Highton,	Leicester Mechanics' Institution.
George Hume,	Ipswich Mechanics' Institution.
Alex. Macdonald,	London Mechanics' Institution.
F. Marshall,	Crosby Hall Evening Classes.
John Smurthwaite,	London Tailors' Labour Agency Literary Institute.

CERTIFICATES OF COMPETENCY.

John H. Corr,	Crosby Hall Evening Classes.
M. H. Cromartie,	Wandsworth Literary and Scientific Institution.
J. R. Evans,	Crosby Hall Evening Classes.
Edmund Hutchinson,	Sheffield People's College.
John Pulling,	Crosby Hall Evening Classes.
Henry Wheeler,	Pimlico Literary and Scientific Institution.

ENGLISH LITERATURE, &c.

CERTIFICATE OF EXCELLENCE.

Edwd. Geo. Clark,	Crosby Hall Evening Classes.
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CERTIFICATES OF PROFICIENCY.

James Burke,	Camden Town Literary and Scientific Institution.
F. Lynch,	London Domestic Mission Society.
James J. Shaw,	London Mechanics' Institution.

James Spencer,	Greenwich Society for Diffusion of Useful Knowledge.
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James Ware,	" " "
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CERTIFICATES OF COMPETENCY.

Francis Ford,	Bury St. Edmunds Athenæum.
Alex. Macdonald,	London Mechanics' Institution.
William Scott,	" "

IN ROMAN HISTORY AND LATIN.

CERTIFICATES OF EXCELLENCE.

(None.)

CERTIFICATES OF PROFICIENCY.

James Burke,	Camden Town Literary and Scientific Institution.
John Pulling,	Crosby Hall Evening Classes.

CERTIFICATES OF COMPETENCY.

Edward Highton,	Leicester Mechanics' Institution.
Edmund Hutchinson,	Sheffield People's College.
F. Lynch,	London Domestic Mission Society.
Thos. Mirehouse,	Crosby Hall Evening Classes.

Thos. Widdows,	Hitchin Mechanics' Institution.
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IN ROMAN HISTORY ALONE.

CERTIFICATE OF EXCELLENCE.

(None.)

CERTIFICATE OF PROFICIENCY.

(None.)

CERTIFICATE OF COMPETENCY.

Arthur Thompson,	Great Western Railway Literary and Scientific Institution.
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IN FRENCH.

CERTIFICATE OF EXCELLENCE.

Edward Steele,	Crosby Hall Evening Classes
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CERTIFICATES OF PROFICIENCY.

Edward Badham,	Crosby Hall Evening Classes.
J. R. Evans,	" "
Thomas Howard,	" "
F. Lynch,	London Domestic Mission Society.

Wm. Shepard,	London Mechanics' Institution.
Thomas Widdows,	Hitchin Mechanics' Institution.

CERTIFICATES OF COMPETENCY.

James Burke,	Camden Town Literary and Scientific Institution.
George Hume,	Ipswich Mechanics' Institution.
John Smurthwaite,	London Tailors' Labour Agency Literary Institute.

IN GERMAN.

CERTIFICATE OF EXCELLENCE.

Thomas Howard,	Crosby Hall Evening Classes.
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CERTIFICATES OF PROFICIENCY.
(None.)

Robert Abbott,	Leeds Mechanics' Institution.
John Pulling,	Crosby Hall Evening Classes.
Edward Steele,	" "

IN FREE-HAND DRAWING IN OUTLINE FROM OBJECTS.

CERTIFICATES OF EXCELLENCE.

(None.)

CERTIFICATE OF PROFICIENCY.

Robert Slingsby,	Lincoln Mechanics' Institution.
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CERTIFICATES OF COMPETENCY.
(None.)

The following are recommended by the Examiners for Prizes:—

IN CHEMISTRY.

Ten Guineas to James Scotson.

IN GEOGRAPHY.

Ten Guineas to Henry Wheeler.*

IN ENGLISH HISTORY.

Ten Guineas to James Spencer.

IN ENGLISH LITERATURE, &c.

Ten Guineas to Edward George Clark.

IN FRENCH.

Ten Guineas to Edward Steele.

IN GERMAN.

Ten Guineas to Thomas Howard.

FOR GENERAL EXCELLENCE IN THE EXAMINATIONS.

Twenty-five Guineas to Wm. Matthew Taylor.*

For the Inland Revenue appointments the following have been recommended:—

Robert Abbott and Charles Chambers.

In my report to the Council, which was read to the Conference last year, an account was given of the holding of the Society's Educational Exhibition in St. Martin's Hall, and of the determination of the Government, at the request of the Society, to establish such a collection as a permanent National Museum of Education. The Institutions will be glad to learn that the Royal

* The Board of Examiners had, at their first meeting, awarded the prize in Geography to Wm. Matthew Taylor. They had some difficulty in deciding between the claims of Wm. Matthew Taylor and Henry Wheeler, but as the Council, on the recommendation of the Board of Examiners, have awarded the Society of Arts prize of twenty-five guineas, for *General Excellence in the Examinations*, to Wm. Matthew Taylor, who obtained three certificates of the highest grade in Mathematics, Geography, and English Literature, the Geography prize thereby is again placed at the disposal of the Board of Examiners, who award it to Henry Wheeler.

Commissioners for the Exhibition of 1851 have, with the assistance of a pecuniary vote of £15,000 from Parliament, commenced the erection of a building on the Commissioners' estate at Kensington Gore, where the Museum of Education and other museums will be suitably and publicly displayed. The Trade Museum, jointly collected by the Royal Commissioners and the Society of Arts, under the charge of Professor Solly, and which the representatives at the last Conference had an opportunity of visiting, displayed temporarily in the Society's rooms, has, during the past year, become the sole property of the Royal Commissioners, who have undertaken to set apart in the above-mentioned building suitable space for its reception and display, with a view to its future increase and full development as a National Industrial Museum.

It has hitherto been customary to state the amount of books purchased by the Institutions during the year under the arrangements for discount made by the Society; this year, however, I am unable to do so, inasmuch as under the plan now adopted and detailed in my last report, the whole of the money part of the transaction takes place directly between the Institution and the publisher, and the Society has, therefore, no account of the sums which are paid. The book orders are now supplied from day to day, and the experience of the year shows that the plan has worked well. I have no reason to think but that as large an amount of books has been purchased during this year as during former years, and probably more. During the year, a great number of Institutions have had the loan of the Society's collection of Photographs, Chromo-lithographs and other objects of interest which the Society has been enabled to obtain for them. To the collection of photographs, has lately been added a series of engravings or etchings by the new process, termed "Photogalvanography," as it is named by its inventor, the etched, or engraved copper plates being produced directly by the agency of light and electricity, a marvellous development of the photographic art. In addition to these, there has been circulated with the Society's collection a series of bronzes, kindly furnished by the Council of the Art Union. The reports from the Institutions show a general spirit of activity pervading their management, tending to increase their sphere of usefulness, and if in some cases their funds are not so promising as their supporters could wish, there certainly seems no reason to despond. A number of earnest men are engaged in their promotion, and day by day that number is increasing. A truer appreciation of the objects of such Institutions, and of the means by which those objects are to be obtained, is gradually awakening. The

true meaning and end of education is becoming more widely understood. Science is no longer considered the sole privilege of philosophers, but its principles are now admitted to be of everyday application to the ordinary affairs of life, and the necessary ingredients in the teaching of our youth. The true aim and end of science is, as Lord Bacon wrote three hundred years ago, "to enrich human life with useful arts and inventions."

I am, Gentlemen,

Your obedient servant,
P. LE NEVE FOSTER,
Secretary.

The SECRETARY then read the following list of subjects which had been suggested for discussion :

- I. The Society's Examinations.
- II. List of Lecturers, &c., including Diagrams and Apparatus.
- III. Female Education.
- IV. Trade Schools.
- V. Bill to amend Exemption Act.

The CHAIRMAN said—For the fifth time we are assembled in this room to hold converse together on subjects which do not, perhaps, yield in importance to any other that we could be called upon here to discuss. We assemble here to day with some advantages over our earlier meetings; our objects are better defined.. We have learned to know what is practicable, and what is impossible; what we may hope some time or other to accomplish, and what we can never effect. We have come, too, to know one another better; to discern our respective aims more clearly. While we have learned to appreciate the good feeling displayed, the strong common sense shown, and the valuable suggestions thrown out by you so often in this room ; on the other hand, you have come to know us better; the suspicions which so many harboured at first have been dispersed ; the belief has grown upon you that we have no covert objects behind, that we do not seek to cramp your independence, or to fetter your freedom of action. On referring to the original memorandum drawn up by Mr. Chester, and placed before the first Conference, I think you will find that nearly all those things we professed ourselves willing to undertake we have at least attempted to carry out. In some we have been successful; if others were above our strength, or beyond our reach, or fenced round with difficulties we could not remove, we are not much to blame, seeing how very often the legislature itself is foiled, how very frequently the Government is compelled to give way. Of the manner in which this day's discussion is to be conducted I have only two remarks to make. One is, that we adhere to the five minutes' limit upon speakers—a regulation which has been found to work remarkably well here, as it would, no doubt, elsewhere. The other is more important, that gentlemen will adhere to the subject under discussion, and not mix up lectures with examinations, or discuss diagrams and female education together. The first subject on the list is that of examinations, as it is the one of the greatest importance before us this day for discussion. And if you will permit me to advise you, I would suggest to you the utility of turning the discussion into the channel, how examinations may best be extended over the country, rather than how the Society of Arts ought to conduct theirs; because I can assure you, in the name of the Council, that no aids which experience can suggest, or ample funds supply, will be wanting to render our system as perfect as we can make it. Now, there are two plans we may follow. We may, like the Committee of Council, send down sealed papers to the different

localities, and have the examinations conducted on the same day all over the country; or we may establish Local Boards of Examiners, to hold preliminary or test examinations. Now, the Council, in their reply to the Liverpool Mechanics' Institution, have stated their objections to their former plan; with your permission, I will read our Secretary's letter to them.* But there are other objections. The Society's examinations would be conducted in privacy or obscurity, and six months after the examination the successful candidate might obtain through the post his crumpled and stale certificate. Besides, independently of this, it has always been the policy of our Society in its action with the associated Institutions, to aid and supplement, not to supersede their action. Now, I have no hesitation in saying that without their cordial and continuous co-operation we cannot succeed. Through their co-operation we can make it a success; and having made it a success, we at once reflect upon the Institutions all the benefits of this scheme—we fill their classes, and we bring their educational advantages before the public. I would throw out the following suggestions for the formation of District Boards of Examiners in union with the Society of Arts:—

I. That the Mechanics' Institution of a populous town, when large, or the several smaller Mechanics' Institutions of the same district, shall group themselves together with a view to the establishment of Local Boards of Examiners.

II. That the managers shall endeavour to obtain the assistance of qualified persons to act as Examiners, chosen from the clergy, the ministers of various denominations, the professional men, and other like qualified persons.

III. That the Local Boards, when so chosen, shall elect a Chairman and Honorary Secretary, who shall place themselves in communication with the Society's Board in London, so as to secure unity of action and uniformity of procedure.

IV. That the Local Boards shall hold their Examinations in the month of March.

V. That as soon after as may be the Local Boards shall report to the Society's Board the results of the Examinations, the numbers of Candidates who are to be sent up to the Society's Examinations in June, and the Subjects in which such candidates are to be examined.

VI. That in the month of July the Local Boards of Examiners shall call Public Meetings in their respective localities, and deliver, in the presence of their friends, neighbours, and fellow-townsmen, to the Successful Candidates, the Society's Certificates and Awards of Prizes previously sent down from the Society of Arts to be so distributed.

EXAMINATIONS.—HOW THEY MAY BEST BE EXTENDED OVER THE COUNTRY.

Mr. BARNETT BLAKE (Yorkshire Union) said, representing, as he did, a union of Institutions existing under varied and different circumstances, he could state that the difficulties with regard to examinations applied to many of them in a very great degree. It might be quite competent for the Leeds Institution to hold local preliminary examinations, and to vote money from its funds for the purpose of sending candidates to London to compete for the certificates and prizes offered by the Society of Arts, but with regard to the great majority of the Institutions, they had no means with which to overcome the difficulties alluded to by the chairman in his opening address. In the great and populous district of Yorkshire, there were a large number of Institutions to whom the certificate of this Society would be of immense advantage, but owing to their great distance from London, where the examinations took place, it was almost impossible that members of those Institutions could participate in the competition for the Society's certificates of merit. He would suggest that one means of overcoming the present difficulty would be the establishment of an itinerant board of examiners, and that the examination should be con-

ducted in some central spot in each district, by men whose certificates would carry value, from the high reputation in which the Society of Arts was held throughout the country. The local Institutions, he thought, would have great difficulty in obtaining examiners from amongst their respective bodies; and upon the subject of examinations generally, he thought the committees of Institutions required a stimulus quite as much as the members of those Institutions. It was quite true, in the great object which had been projected by the Society of Arts, a great deal of its usefulness and success must depend on the exertions of the local committees of Institutions, and to this end a stimulus was required. It was not enough in the present day to say that "virtue has its own reward." They were dealing with a class of men in whom the country at large had a considerable interest. They were dealing with a class of men who required to know that in devoting their attention to the study of any particular branch of science or literature, they would have a positive and tangible appreciation of their abilities in the certificates awarded by the Society, which would be of advantage to them in their after progress in life, and which should be a lasting testimony of their abilities and be promotive of their future interests. The question which he wished more particularly to bring under notice was, whether the Society of Arts could not, with the powers it possessed, instead of holding the examinations year after year in London, send its examiners into Yorkshire or some central place in other large counties, where there were a large number of Institutions in existence, to sit for a day or two days, as required, in order to examine those candidates which the local Institutions had not the means of sending to London, but whom they might easily send to Leeds or some other central town for the purpose of examination, under the plan which he now ventured to suggest. The Union which he represented embraced 130 Institutions, and there were many others not yet in union in the same county. He, therefore, thought the subject of itinerant examinations was one worthy of consideration.

The Hon. and Rev. S. BSTR (Harts and Wilts Adult Education Society) said, he, like the gentleman who had just spoken, represented an aggregation of societies—including nearly 100 village educational associations,—and he went with that gentlemen to the extent of his observations with regard to the impossibility, even if a portion of the expenses were paid from extraneous sources, of sending up candidates to undergo a three days' examination in London. Even if they could get over the difficulty of expense, a further and still more formidable one remained, viz., that employers would not allow their servants so long an absence from their duties; and he was sorry to add, that his own experience in this matter was anything but favourable to the employers, who he had not found ready to make any sacrifices in order to allow the young men in their service to come up to London for the purpose of examination. Therefore, if they could get over the difficulty of the expense, there remained still the insuperable difficulty of persuading employers to allow those in their employ, from clerks down to the intelligent mechanic and agricultural labourer, to come up to London and devote the requisite time to the examinations instituted by the Society of Arts. Thus circumstances which they could not control prevented full advantage being taken of the Society's intentions in this great matter.

The LORD MAYOR of York (Mr. James Meek, jun.), representing the York Institute of Popular Science and Literature—said, as the representative of one of the Institutions alluded to by the gentleman who spoke first he begged to say, the subject of itinerant examinations was one which possessed his own thoughts. It appeared that there were insuperable obstacles in the way of the effectual and practical working of the system of examinations, if the candidates were obliged to come all the way to London for that purpose. In addition to the expense, there was an objection on the

* See *Journal of the Society of Arts*, ante, page 318.

part of parents to their sons being launched upon a large city like London; and with regard to the grouping of Institutes into districts, the same objections would apply to a minor extent. For instance, if the Yorkshire and a number of other Institutions were formed into a Leeds district, the same objections would exist, although in a less degree. If an itinerant board of examiners could be organised, even if it involved contributions from the particular Institutions asking for the attendance of the examiners, he thought that would be the practical way of attaining their object, and in districts where no candidates offered themselves the examiners would have no occasion to attend.

Mr. H. GORE (Leeds Mechanics' Institution and Literary Society) supported the suggestion of Mr. Barnett Blake, and coincided in his views as to the practical impossibility of the examinations being general, so far as the less favoured and distant Institutions in Union were concerned. With regard to the large Institution which he represented, he would mention that the committee found a difficulty in meeting the requirements of their candidates, regard being had to the amount of funds at their disposal. There were other pupils whom they would have been glad to have sent, but it was impossible to raise the necessary funds for that purpose. That which applied to the larger Institutions applied with greater force to the majority of the Institutions in the country; whereby the parties whom they most wished to benefit were placed under circumstances of the greatest disadvantage. They had four or five other candidates who were anxious to be examined for the Society's certificates, but they could not ask them to be at the expense of residing four or five days in London, in addition to the railway fares. They could not hope the pupils would do so; it would be asking them to do a positive injury to themselves and their families to undertake such a journey under such circumstances, and the funds of any single Institution must be in a very prosperous condition to enable it to bear all the expenses attendant upon sending up three or four candidates for examination. He thought the suggestion of itinerant examinations was not attended with all the difficulty that might appear at first sight, because there were a great many Institutions that could afford to pay a small fee towards the expenses of the Board of Examiners. At all events, he thought the experiment might be ventured upon in some central town, either in Lancashire, Yorkshire, or Staffordshire, appointing a spot at which persons in the district might assemble at small expense both of time and money, and, at the same time, contribute in a great measure toward the expenses of the Board of Examiners. The next important question was, how far it would be practicable to limit the members attending the Society's examinations. Preliminary examinations by a central local board could be instituted, and a prize worth contending for in such local examinations might be the payment of the expenses of such as most distinguished themselves, to enable them to compete in the examinations to take place in London. That appeared to him to be the only way of meeting the case, and even then, the operation of the examination must be necessarily restricted, for it was impossible that the Institutions themselves could bear the expenses of the journey of three or four of their members to attend the examinations in London, and this remark more especially applied to that description of persons whom they more particularly wished to have the benefit of the advantages offered by the Society of Arts.

Mr. HARRY CHESTER (Vice-President) said—Circumstances of a domestic nature had prevented him taking any part in the active proceedings of the Society for a considerable period; he therefore came to the consideration of this subject quite as unbiassed by any recent acts of the Council as any one present representing the Institutions in Union. He was at a distance of a thousand miles from England at the time the Council came to the determination to alter the

character of the examination from written questions in the several departments to oral examination. There could be no doubt that the two different plans of examination would produce different results; but he thought the great thing to be looked to was, as far as possible, to combine the advantages of both. They had heard that the Society had given up the plan of paper examinations. On hearing this he felt sorry, because he knew the effect would be to narrow the range of the examinations, and that an advantage would be given to the larger and richer Institutions over those less favourably situated, for the reasons which had already been advocted to. But when he came to see how the thing was to be worked, and how it had worked, he felt convinced that what had been done was of the greatest value in the matter of public education. He thought it would be a misfortune if they were compelled to give up the plan adopted this year. He thought one important object to be effected was to encourage the formation of local unions, in order to work out the preliminary portions of the business. He thought it quite impossible that the Society of Arts could send out boards of examiners into different towns; because the Society did nothing in this matter except through the most distinguished men that were to be got, and he should be sorry to reduce the value of the diplomas granted; and if the plan of travelling boards of examiners were adopted, they must necessarily be deprived of the services of those eminent men whose co-operation it was so desirable to secure. If the travelling board did not visit almost every town of importance, the objections which had been mentioned would still exist. It was as difficult to travel now-a-days twenty or thirty miles over a cross country as it was to travel two hundred miles by railway to London. At the same time, he admitted that the expense on the part of the more remote Institutions of sending up candidates for examination occasioned an almost insuperable difficulty; and in this respect, perhaps, the Society of Arts might see its way to doing something more than it had yet done; and to this end he hoped some more active steps would be taken towards the organisation of local preliminary examinations. He did not attach so much importance as the Council seemed to do to the difficulty of avoiding copying and unfair proceedings with examinations conducted on paper, spread simultaneously over a large extent of country; but he thought the difficulty might be diminished by the Society deputing an officer of its own appointment to preside over the examinations in certain cases, which officer should be responsible for the fairness with which the examination was conducted. He agreed as to the great desirability of the examinations taking place, as far as possible, in the places where the candidates gained their daily bread; and to such as gained first-class certificates in these local examinations the means might be offered as a premium to enable them to proceed to London to compete for the higher honours bestowed by the Society of Arts. He thought the Chairman, in his address, had omitted one important point; inasmuch as, in the plan he proposed for extending these examinations, he had omitted the functions of the Chancellor of the Exchequer; and when invitations were given to persons to be examined, the means must be provided for them to attend. They could not move from the places in which they resided without being pecuniarily assisted. He (Mr. Chester) was therefore inclined to advocate the organisation of provincial unions and sub-unions; and by an extensive adoption of that plan, he thought funds would not be wanting in future to carry out the plan adopted by the Society. He thought there was scarcely an Institution in existence which could not contribute something towards bringing the advantages of this system to the people of their own locality.

Mr. JAMES YATES, F.R.S. (Highgate Literary and Scientific Institution), thought preliminary local examinations would remove many of the difficulties pointed out as

at present standing in the way of the object in view, in these examinations. By this means the number of candidates for the higher classes of examination might be reduced to such an extent as that means would not be wanting in the several districts for sending the most proficient pupils to London for examination. The preliminary applications could be sent in some time previously to the general examination taking place; and he did not see any objection to the Council of the Society deciding in proportion to the number of candidates offering themselves for examination, at what town or city in the district the preliminary examination should take place. At the same time he felt persuaded that there were other parts of the country, no less than in London, where they might have examinations conducted in the most satisfactory manner. Examiners might be sent from London, but he saw no absolute necessity for it, because he was satisfied that qualified examiners might be found in other situations. Take Manchester as one great centre; if they compared the population of the district forty miles round Manchester with the district forty miles round London, it was beyond all comparison greater and more important in point of population. He could not say what the proportion was; but he should say it was twice, and it might be three times, greater. But there was yet a still higher consideration. What was the state of intellectual activity, and the amount of general information, taking the comparison between the two districts? His own impression was, that the intellectual activity in the districts around Manchester would stand higher than in a similar extent of district around London; that is, taking all classes of the people—high and low; and he believed that a greater amount of general intelligence would be found to prevail in the large district of which Manchester is the centre, than in that of which London is the centre. They would find more applicants for examination from the Northern districts than from the Metropolitan districts. If they took Leeds as another centre, he believed the same results would be obtained; and the same might also be said of Glasgow. To refer to individual cases, he might mention that he lately received a printed list of subjects for examination from an educational establishment at Llanddovery, in South Wales, and such a list he did not think would suffer from being placed before the heads of University College or King's College. He had also received similar papers from Southampton. In Carmarthen, likewise, examinations of a high grade were conducted. In Manchester they had Owen's College, with Professor Williamson and Dr. Franklin, and at its head men who stood high in rank in London and elsewhere. In Glasgow, also, there was a University of great eminence; all which facts were proofs that they ought not to give undue preference to London, as the intellectual as well as the political capital of the empire, so as to entirely exclude other portions of the kingdom from similar competition. He thought, if a plan could be originated by which these examinations could be conducted in certain districts, it would give a stimulus to those localities, and would reflect the highest honour upon this great Society.

Mr. BUCKMASTER (London Royal Polytechnic Institution) did not agree with all the arguments of the last speaker, with reference to examinations. If they increased the number of examiners, they would increase the difficulties of the examinations. He believed the work could be done better the fewer the number engaged in it. He apprehended there would be very little difficulty in carrying on a simultaneous examination in different places, if it were necessary; and if a hundred persons were ready to undergo examination in any particular district, and a time was appointed, let some one be sent from the Society of Arts, and let the responsibility of that examination rest upon that individual. He thought they did not require a great man for that duty, but one who was acquainted with what he had to do. Under such circumstances, the papers would be sent down from London at the same time, be given out to be worked

in each district on the same day or days, and be then sealed up, sent to London, and examined by the Board in London, and the results of the examination could be published as soon as the papers were gone through. Of course, care must be taken that the papers did not ooze out, and thus he believed the examinations could be carried on as effectively as if they took place in that room. It was out of the question to think of examining 500 persons at the Society's house; and if they had to move, he apprehended the difficulty would be as great a mile from that place as if it were done 100 miles distant. He was quite sure that in particular districts they would find a hundred persons ready to undergo examination. To such let an officer be sent down, and let the same papers be sent into other districts. He was aware that difference of opinion obtained with regard to oral examination. Some persons would answer questions easier and quicker than others by oral examination; and a man might fail in oral examination who might succeed in paper examination. The test of oral examination was in the promptitude of the answer, whereas the examination by papers afforded more time for consideration; and, he thought, a man's attainments could be measured better by what he committed to paper than by what he answered off-hand. He was satisfied that there was no examination like a good paper examination, by which, he believed, they could get at results more correctly, and, therefore, he did not attach the value which some appeared to do to oral examinations, although they were very well if they could be properly carried out.

The Rev. W. R. BOWDITCH (Wakefield Mechanics' Institution) said, in the case of the Society which he represented, they found it impossible to send up candidates to London for examination, and he could state that the principal of a *quasi*-public school in Wakefield was in a position to send up 13 or 14 pupils who, it was believed, would have passed the examination with distinction, but the means of sending them were wanting. The principal of the school told him, "They have no money, no influence, but they have plenty of brains and good education." This was the class of persons that the examinations were intended for, and he thought the only way of meeting the case was to send out examiners into the various districts. With all deference to the observations of the chairman, with regard to examinations by printed papers sent out simultaneously, he (Mr. Bowditch) begged to say that when, in accordance with the minute of the Committee of Privy Council on Education, printed examination papers were sent out in 1846, having officiated as an examiner of 86 pupils, not a single difficulty occurred in the mode of conducting that examination, and it was characterised by the most perfect fairness throughout. If they had local boards of examiners they would have to contend with the difficulty that each board would conduct the examination in its own way, and each examination would be different from another. The great object was to give stimulus to education. These examinations were valuable only as a potential instrument, impelling both masters and pupils to exert themselves more in time to come than they had done in time past. But then the necessity arose for examining every Institution in the country separately—seeing it in its every-day life, and not merely in its holiday clothes, and that could only be done by sending competent inspectors, going from place to place, and bringing back a report in each case.

The CHAIRMAN—Where are the funds to come from?

The Rev. Mr. Bowditch admitted there was the difficulty of the thing. He would express his own opinion that it was impossible to conduct examinations satisfactorily except as a department of the educational machinery of the country. The Society of Arts had initiated it well. It initiated the Great Exhibition, and it acted well in afterwards handing it over to the Royal Commissioners, and in like manner he should rejoice to see the plan of examination, which the Society had so well initiated, handed over to a department of the government. If that were found to be

impracticable, he would suggest that the Society should adopt the plan of sending sealed papers throughout the country, as he did not think local boards of examiners would be found to work well.

Mr. JOHN SPANTON (Loughborough Literary and Philosophical Society) remarked, that local boards were apt to be influenced by local prejudices, and experience too often showed that such prejudices did exist, which would probably have more weight with those who were to be examined than with the examiners themselves. Another course was, however, open. Instead of appointing local boards by local agency, the Society of Arts might be able to find persons in different parts of the country willing to undertake the duty.

The Rev. A. BATH POWER, M.A. (Great Yarmouth and Southtown Young Men's Institute), said, he appeared at this conference rather in the capacity of one of the board of examiners than as the representative of a Society, and he had, therefore, waited to hear the opinions of the various delegates present on this subject. There could be no doubt but that the attempt to assemble large numbers of persons in London for examination was attended with great practical difficulty. The board of examiners were quite aware of the fact that, but for the difficulties pointed out, the number of candidates at the late examination would have been considerably greater than it was, and numerous expressions of regret were received at the pressure of circumstances, to which allusion had been made. If it were not for the element which had entered into this discussion in reference to the desirableness of including oral with written examinations, he thought a great deal might be said in favour of examinations carried out upon a large scale upon the plan with which they were familiar as adopted by the Committee of Privy Council on Education. The mode in which those examinations were conducted, commanded the confidence of the country at large. There had never been a whisper of suspicion or doubt expressed but that the results arrived at through that machinery were perfectly satisfactory—as satisfactory, in fact, as any human machinery could make them. Having explained the system adopted under the plan of examination by papers, their mode of collection and transmission to the board in London, the reverend gentleman added, that he thought a machinery somewhat of the same character would be found to answer very well in the great object which the Society of Arts had in view, and the examinations might be conducted on somewhat similar principles. To that end, he thought it was not necessary to have an officer appointed by the Society, at great expense. Gentlemen who had rendered voluntary services in connection with the present plan of examination would, he thought, be happy, as far as possible, to lend their aid in carrying out subjects of a more comprehensive character. The papers sent out under the plan adopted by the Committee of Privy Council, might be received by this Society as the centre, to be placed under the charge of certain gentlemen for the purpose of examination in detail, as time and circumstances permitted. It might occupy a longer period than was the case in the late instance, but he thought the question of a few days or weeks in the publication of the results was a matter of small importance. The examinations by papers having been completed, promising candidates might be invited to attend an oral examination before the board in London—if oral examinations were thought so essential to the scheme. His own views, with regard to oral examination, corresponded very much with those expressed by Mr. Buckmaster. He had known instances in which, from accidental circumstances, candidates had suffered materially under that plan, and it struck him that if oral examination was to be carried out to any great extent, more time must be occupied on future occasions than was the case on the late occasion of the examinations. As it was, the examiners were somewhat embarrassed by the number of candidates. He would express his own opinion—founded

not merely upon recent experience, but also upon that gained in connection with the operations of the Committee of Privy Council of some years' standing, that the employment of a similar machinery—admitting probably of some modifications—would be the best means of extending the advantages of those examinations over the entire surface of the country.

Mr. CHESTER said the mode of examination by papers was that which was proposed by the Council of this Society, and adopted by the Conference, two years ago; but when the Council came to apply themselves to the matter, they experienced the difficulties that had been mentioned in the communication with the Liverpool Institution, which had been read in the address of the Chairman that morning; and therefore the plan had been modified to the extent they had heard stated in the report of the Secretary. As far as regarded paper examinations, he thought it would be better to have the cream of the candidates brought up; and if the Society of Arts should continue in its present good financial position, he did not know any mode in which the funds could be better appropriated than in assisting to bring up a few well-selected individuals to compete for the highest honours of the examination.

The CHAIRMAN said the plan, as originally put forth in 1854, was before the country for two years, and during the whole of that period they had only two applications from parties to be examined. The Council of the Society, therefore, thought it necessary to modify the plan, and to take some other course in order to bring the matter fairly before the public. The result had been the number of candidates they had heard of.

Mr. SMITH CHILD, M.P. (Shelton Pottery Mechanics' Institution), said—In the district which he represented there were many Institutions, but most of them so situated that they could not afford the expense of sending pupils to London for examination. In considering a scheme of this nature, they must not consider it abstractedly, but what was the most possible and practicable plan to be adopted. In looking over the list of young men who had received prizes and certificates in the late examinations, he found that they were all either from localities close to London, or from populous towns having large and rich Institutions; which showed, he thought, that the districts less favourably circumstanced were placed at a disadvantage in this honourable competition. It appeared to him that a modification of the plan detailed by Mr. Bath Power was the best that could be adopted—viz., to issue examination papers to the Institutes in every district under proper supervision; and upon the examination of these papers, or upon the certificates of merit awarded, they might eliminate from the great mass a certain number who might be brought up to London to compete for the superior orders of merit to be awarded by the Society of Arts.

Mr. WILLIAM S. MASTERMAN (Croydon Literary and Scientific Institution) suggested a plan of examination similar to that which was adopted in the case of candidates for admission as attorneys. He expressed himself in favour of the more extended plan of examination by papers, considering that oral examinations, from their necessarily restricted operation, would not effect the end desired. He thought persons of talent, in every district of the country ought to have a fair opportunity of competing for the honours which were awarded by this Society.

Mr. SMITH CHILD thought the directors of railways would grant free passes to candidates coming to London for examination.

The CHAIRMAN replied that the privilege had been refused.

Mr. STEPHEN BALDOCK (Barnet Institute) thought it desirable, if it could be carried out, that the chief examinations should take place in London. He thought, after the suggestions that had been thrown out, the several Institutions might meet the expense of sending a candi-

date or two to London by putting a small additional subscription upon each member.

The CHAIRMAN would remark that throughout this discussion it seemed to be implied that the Society of Arts had large funds at its disposal. That Society was a purely voluntary body, and it was to be recollect that educational examinations, however valuable, were only a part of the objects they carried out, and therefore he should hesitate to pledge the Society to any extraordinary amount of expenditure in the matter of the examinations. It was hardly proper to compare the operation of this Society with that of the Committee of Privy Council, who had unlimited funds at their disposal—their own body of organised officers to send round, and their own normal teachers to employ. The Society of Arts possessed no such organisation, and if they had they would be obliged to pay for it.

Mr. JOHN HIXON (Holmfirth Mechanics' Institution) had listened with some apprehension to the suggestion that deputations of examiners from the Society of Arts should visit the Institutions in the country. If any considerable number of examiners were appointed it would be attended with great expense, and whether the Society would be able to meet that expense, was a matter which he had entertained with apprehension. Then, with regard to the expense of sending candidates to London for examination, he was afraid that would be attended with difficulty; and it was a grave question with him whether the managers of Institutions would be justified in appropriating the funds of the general body for the purposes of individual benefit and advantage. He thought the suggestion of sending one or two qualified persons to enter upon examinations in certain central localities was worthy of serious consideration. They could not but highly appreciate the exertions which the Society of Arts had made on behalf of the Institutions in Union; but he thought the subject of examinations was beset with considerable difficulties. With regard to oral examination, he attached considerable importance to it; for it might be that a pupil might commit something to paper which he could not explain upon oral examination.

Mr. THOMAS WILSON (Leeds Mechanics' Institution and Yorkshire Union) remarked that one great good would have been effected if they were enabled to decide what was not practicable, even if they could not arrive at what was practicable. The discussion had, to a great extent, shown that central examinations, if intended to apply to the mass of those who in future years might present themselves, were impracticable by the means which any Institution had at present at its command, and he thought central examinations could only be carried out by a general measure, such as no voluntary society could undertake. He thought the difficulty of providing funds to send candidates to London for examination had not been over stated. It might readily be accomplished in the cases of Institutions situated within ten or twelve miles of London, but it could hardly be done at a distance of 200 or 300 miles. The Institution which he represented numbered some 2,000 members, and had a considerable annual income, but it was with difficulty that the Committee felt they could appropriate the small sum they did to sending a few of the pupils of their day schools and evening classes to London for examination. Mechanics' Institutes, like many other educational establishments in this country, were, for the most part, at the last gasp to find funds to go on with; and it was impossible to find money for any service involving a large expenditure. The only practical measure, he thought, was local examinations; and the question arose—not how that could best be done, but how it could be practically carried out with the means at present at their disposal. After considering all the suggestions that had been thrown out, he was afraid there was no other plan open to them than that adopted by the Committee of Privy Council on Education, the principal difficulty then being, that in the smaller

Institutions they had not an organisation which would admit of that system being safely applied, inasmuch as they must have the certainty that such examinations were conducted with the strictest impartiality.

Rev. W. TAYLOR JONES (Romford Literary and Mechanics' Institution) said he felt a strong interest in this question, connected as he was with an Institution (the Royal College of Preceptors) which was endeavouring to carry out the same cognate measure, and by which examinations of young men, and pupils of schools, were carried on. The subject of the examination of private schools had been debated day after day in the Institution with which he was more particularly connected, and the only plan they could bring themselves to adopt was that which had been practised by the Committee of Privy Council on Education, viz., by printed papers and the appointment of proctors to be present during the examinations, to collect the examination papers and transmit them to the Board. As an examiner of some years' standing, and also as an examinee, he did not attach the importance some gentlemen had expressed to oral examinations. He had known persons pass a rapid oral examination which would not have been so satisfactory if it had been set to paper, whilst, on the other hand, he had known persons who could not undergo an oral examination, yet had passed most satisfactorily when the examination was conducted in a written form.

The Rev. BATH POWER wished to state, in reference to what had fallen from the Chairman, that in the comparison of the Society of Arts and the means at their command with the Committee of Privy Council on Education, his idea with respect to sending examination papers to local centres was, in his opinion, the most economical that could be adopted. He knew of no other machinery which would embrace so large a sphere of action without incurring larger expense. There were centres of recognised educational movements to which the examination papers could be sent, and to the persons attending those examinations the expense and loss of time would be very small as compared with coming to London.

The CHAIRMAN remarked that the difficulty might be met by charging a small fee on the issue of each certificate, which was now furnished gratuitously.

Mr. THOMAS WINKWORTH (Member of Council) remarked, that it resulted from this discussion that the Council of the Society could take no action upon this question, inasmuch as gentlemen differed in opinion, first, as to the relative advantages of oral and written examinations; secondly, as to means by which candidates could be subjected to either or to both; and, thirdly, as to the persons who should be the examiners. Supposing they had one set of examiners to go to one part, and another set of examiners to go to another part, it was clear if such a system were adopted it would not inspire confidence in those who were to be examined for the honours which the Society proposed to distribute. Therefore he would suggest, that as they had twelve months before them, an opportunity would be afforded of largely examining into the difficulties with which the question was beset, and he had no doubt that long before the period for the next examination, an approximation to something that would be satisfactory to all parties would be arrived at.

The CHAIRMAN said the discussion which had taken place would have the full consideration of the Council. He proposed that they should now proceed to the next subject on the list, namely,

THE NEW LIST OF LECTURERS,
relative to which he would remark, that the list just issued had been printed he thought upon a better plan than formerly, and was intended as a directory for the use of the Institutions.

Mr. BLACKMORE (Wandsworth Literary and Scientific Institution) inquired whether it would not be possible to give more generally the terms of the professional lecturers.

The SECRETARY replied that it had been done as far as possible in the list just issued.

Mr. BLACKMORE also inquired whether it would not be possible to obtain a list of the teachers of Institute classes to be issued with the List of Lecturers.

The CHAIRMAN replied, no doubt it could be done on a future occasion, but he thought the number was so small and scattered that it would be of little service.

Mr. BLACKMORE added, that Institutions had frequently great difficulty in knowing where to seek for teachers of Institute classes.

Mr. HENRY HUGGINS (Winchester Mechanics' Institution) said, the same difficulty had been experienced in the Institution which he represented. He suggested the practicability of Institutions in towns situated on one line of railway within easy distance of each other—such, for instance, as Southampton, Basingstoke, and Portsmouth, on the South-Western line—entering into an arrangement for the employment of the same teacher on different evenings of the week. He thought by such a plan an efficient instructor might be obtained in a manner economical to the several Institutions who associated for that object.

The CHAIRMAN said it was only open to the Institutions themselves to make an arrangement of that character. It was, of course, a matter into which the Society of Arts could not enter.

The Hon. and Rev. S. BEST remarked, that such a proposition had emanated from Southampton.

Mr. E. KEMP WELCH (Poole Town and County Library) inquired whether skeleton lectures could not be furnished for the use of those Institutions which could not afford to pay professional lecturers?

The CHAIRMAN replied that the plan had to a certain extent been adopted by the Working Men's Educational Union. It had been at one time proposed by the Society to issue manuscript lectures; but, as it did not meet with sympathy, the plan fell through. He believed one manuscript lecture was tried at an Institution, and failed.

Mr. E. LANE (Plymouth Mechanics' Institution) remarked that they were in great want of a popular and poetical lecturer on decimal coinage—(laughter)—and he was at a loss to know where to apply for such a one. He could promise a gentleman who would endeavour to enlighten his fellow townsmen on this subject a welcome reception and kindly entertainment in Plymouth.

The CHAIRMAN had no doubt Mr. James Yates could put the gentleman in the way of gratifying his wishes in that respect.

Mr. YATES, F.R.S., said the International Association for obtaining a Uniform Decimal System of Measures, Weights, and Coins, would be happy to furnish a lecturer. Although he could not promise a poetical treatment of the subject, still he thought the subject, properly handled, was not so dry as many supposed it to be.

Mr. R. G. F. SMITH (Portsmouth and Portsea Literary and Philosophical Society) remarked that difficulty had been experienced in inducing other Institutions in the district to join in the engagement of lecturers; and the difficulty of provincial Institutions in selecting lecturers was enhanced by the list just issued containing no recommendation of such as had more particularly distinguished themselves in the subjects of which they treated. He wished to see a list from which they could not only choose themselves with confidence, but also recommend to their neighbours. He mentioned the difficulty he had experienced in endeavouring to associate Institutions for this object. Having himself occasion to make inquiries respecting a lecturer, he wrote to the officials of two Institutions; one of whom returned the answer that the person with respect to whom the inquiry was made was a most able and efficient lecturer, whilst the other stated that they had completely used him up. (Laughter.) He had been requested to make a suggestion that a central committee should be formed in London, of which the Society of Arts should be the head and directors; and that such

committee should be a centre of communication between the lecturers and the Institutions; that such committee should be furnished with a certain amount of apparatus required for the illustration of scientific lectures, which might be purchased partly by government grant, and partly by contributions from such Institutions as were disposed to assist in the object; and also that this central committee should make arrangements for circuits of lecturers, to give regular courses of scientific lectures, in the place of the desultory system to which they were at present obliged to have recourse, even with the assistance of the published list of lecturers just issued. It was suggested that—say 400 Institutions should unite upon the matter of lectures; each Institution to subscribe £30 a year towards engaging lecturers for the whole season. This would amount to a sum of £12,000, which would provide eighty lecturers, allowing to each £150 for the six months; and for such a consideration, the Institution he represented believed, gentlemen who devoted themselves to particular branches of science would undertake a circuit of the character he had described.

The CHAIRMAN would state, in reply to the gentleman who had just sat down, that this subject had been very extensively discussed by the Council three or four years ago. They had tried the plan on a small scale in the first instance, and even then found difficulty in carrying it out; and he might mention that Mr. W. Hughes, who was regarded as one of the most popular lecturers of the day, experienced the greatest difficulty in bringing even a few Institutions to co-operate for the purposes suggested. He was of opinion that no such plan could be successfully carried out; in fact, the representative had himself furnished the best answer that could be given on the subject in the statement he had just made—that even in two Institutions diverse opinions prevailed with regard to the abilities of a particular lecturer. How could they expect such a plan to succeed with a multitude of Institutions, and a host of lecturers? The Society of Arts could not undertake to do everything in behalf of the Institutions: they must have some freedom of action amongst themselves, and he thought they could not do better than inquire into the qualifications of the lecturers whom they contemplated engaging.

Mr. GORE would remark upon the question of apparatus, with which he had had somewhat to do, that he thought the Society of Arts might render important service to the Institutions by offering a premium for the production of a cheap set of educational apparatus, for a systematic course of instruction. To think of applying to the mathematical instrument maker for apparatus for popular illustrations of science was out of the question; they must be content to look for the aid of the cabinet maker and the carpenter in such matters. He was sure such a proceeding would be of great benefit to the Institutions, because a lecturer going a long distance could not take along with him the bulky apparatus which was essential for the illustration of his subject.

The CHAIRMAN called attention to the statement contained in the report of the Secretary relative to the plan proposed by the Committee on Education with regard to apparatus for the illustration of lectures, and he might mention that the Department of Science and Art at Marlborough House had proceeded in the same direction in the invention and preparation of scientific and other apparatus; and he believed such apparatus would shortly be supplied at prices which the Society of Arts could not hope to approximate.

Mr. GORE added that the Society had done good service to the cause of scientific education by the premiums they had offered for the colour-box and the microscope; and he thought good results would follow from a similar course being taken with regard to educational apparatus.

Mr. CARESTER alluded to the great superiority of the French cases of mathematical instruments. They could be bought as low as one franc, and up to ten francs. The

first contained serviceable instruments, the latter complete and highly-finished articles.

Mr. BARNETT BLAKE said, two years ago he brought before the attention of the Conference the subject of affording the more distant Institutions from large towns assistance in the matter of lectures; but the difficulty was how to diminish the expenses of the lectures to such Institutions. In the list now published there was nothing more than might be found in the circulars of the lecturers themselves, excepting the advantage of knowing where those gentlemen could be found. The advantage hoped for by the co-operation of the Society of Arts, was an arrangement for economising the expenses of lectures by means of circuits. That failing, the next best thing they could do was to give a list of those lecturers who required to be paid, and those who gave their services gratuitously in particular localities. With reference to the lectures themselves, he thought the most valuable were those which might be termed suggestive lectures—pointing out the future studies that members of Institutions should take: he looked to that rather than to the positive information conveyed in the lecture itself as a means of real good amongst these Institutions. With reference to apparatus, diagrams, and maps, he questioned whether any advantage would be gained by the formation of a dépôt in London, except in the case of diagrams, which could be transmitted with facility from place to place.

The CHAIRMAN remarked, that no proposition for the supply of lecturers to the various Institutions could be entertained unless they were prepared to place the whole of their lecture arrangements, both as to time and subject, in the hands of the Society. Unless that were done, the Society could not move a step in the matter; and he very much questioned whether the Institutions would be disposed to enter into such an arrangement for the purpose of being supplied by them with lecturers.

Mr. BUCKMASTER said, lecturers must be distinguished from teachers. If they met with a good scientific teacher, he might be able to carry on a systematic course of scientific instruction in several Institutions in the same neighbourhood, but it was idle to suppose that a lecturer would travel about the country attached to no special place. He thought a man who was to be a teacher of science in these Institutions, ought to be responsible to some authority. If they could establish that authority, a man might attend several Institutions, and a good system of instruction would be guaranteed. With regard to apparatus, he would remark that a good lecturer did not want a great deal of apparatus: it was rather an impediment than otherwise, for illustrations were always at hand with which the audience was more or less acquainted. All they wanted was apparatus which would illustrate the elementary principles of science. So far as his own experience went, he would tell them he did not believe there were five-and-twenty persons in the whole country who were competent to undertake the systematic education of a scientific class with efficiency and usefulness. The Trade and Navigation Schools which were being established in the country might serve as centres. A school of that description had been established by Mr. Green, at Poplar. This was started with eighty men, who were engaged in the dock-yard all day, but they were, nevertheless, most regular and exemplary in their attendance upon the course of instruction provided for them, as an occupation for their evenings. An absentee was the exception. How was it that such schools succeeded? Because there was system and organisation, and there was a responsibility to head quarters on the part of the instructors in these schools. Without system and without organisation they could do nothing. He could say for himself, that he should hardly consider a "welcome reception" a sufficient remuneration for going to Plymouth to lecture.

The CHAIRMAN remarked that he did not see that either the furnishing of educational apparatus, or the

supply of scientific teachers to Institutions, were matters that could be taken up by the Society of Arts. He admitted these were wants. He agreed with the last speaker in thinking that there were not five-and-twenty people, disengaged, who were qualified to teach scientific classes of Institutions. It was a want of the age.

FEMALE EDUCATION.

The CHAIRMAN said this was a subject in which he had taken great interest. He might say it was at the base of all improvement in education. He begged to call upon Mr. Chester to state the practical results of a school with which he was connected, in which female education was particularly attended to.

Mr. CHESTER said this was certainly a subject in which he took a deep interest, and, having read a lecture of the Chairman's on the Industrial Education of Females, he begged to say he entirely concurred in the views expressed. He, however, thought this was a subject which barely came within the scope of the present Conference.

The CHAIRMAN.—It has been asserted elsewhere that my views are theoretic. I should, therefore, be glad to hear what has been practically carried out in the Industrial Schools at Highgate.

Mr. WINKWORTH remarked that the Society of Arts embraced a wide field of operation. They were not confined to Mechanics' Institutions. There were many Institutions of various kinds, which did not come under the category of Mechanics' Institutions, which were recognised by the Society; and therefore he thought the Conference might with advantage consider this subject, which had been placed upon the paper. He entirely agreed in the opinion expressed by Dr. Booth, in his interesting lecture on this subject, that there was a great difference between instruction and education. The one was received from the teacher, the other from the parents.

Mr. BARNETT BLAKE considered that the Conference could hardly entertain a subject of greater importance than this; and he believed it was in the power of Mechanics' Institutes to do important service in this matter in the various localities in which they were situated. There could be no doubt that upon female education rested a very considerable portion of the social and moral welfare of the industrial classes of this country; and therefore it was of the highest moment that a proper education should be imparted to those who were hereafter to fill the office of wives and mothers. He could point to a gentleman (Mr. Hixon) who had taken an active part in this matter in his own locality, and who had experienced no difficulty in getting ladies of his district to volunteer their services as teachers; and in other quarters, where attention had been paid to the subject, they had been in a great measure successful. If it were more generally taken up, he was convinced that it would largely contribute to the comfort and well-being of those around them. He believed the absence of home employment for females—especially in the manufacturing districts—was the source of much misery and evil. Females were attracted from their homes to earn wages in factories, until they lost sight altogether of the ordinary offices of domestic life. Mr. Blake proceeded to state the plan which had been introduced by a large manufacturer of Huddersfield, of inducing females to attend classes of instruction in plain needlework (in which, he said, the females of the manufacturing districts were frequently very deficient), under the attraction of interesting tales being read to them whilst they were employed in needle-work. That plan had been found highly successful.

Mr. CHESTER fully admitted, that there was no subject of greater importance than the proper training of the wives and mothers of the industrial classes; but he would repeat, that he thought it was one which hardly came within the scope of the present conference to entertain. The object of this conference was, to make it useful to the Institutions, to afford increased facilities for carrying out their objects. The Chairman had been so vigorous

and so successful a promoter of education, and had grasped with so strong a hand the reins of the Society of Arts during the period of his present office, that he (Mr. Chester) felt great reluctance in declining to comply with the request he had made; but he thought the interests of the Institutions in Union would be best promoted and preserved by keeping to the subjects which properly came within their sphere.

The Rev. Mr. BOWDITCH considered the subject of female education closely connected with the promotion of the usefulness of Mechanics' Institutions. He thought it of the greatest importance that instruction in the duties of domestic life should be added to the other teaching of females—such as needle work, baking, cooking, &c. The waste in a poor man's house from ignorance on such matters was enormous, and he could take them to houses of the working classes where every bit of needle work was put out and paid for.

Mr. YATES mentioned that in Liverpool there was a girls' school in connection with the Mechanics' Institution, and he was sorry there was no representative present from that place.

A general wish having been expressed that Mr. Chester should favour the conference with a statement relative to the schools at Highgate.

Mr. CHESTER proceeded to state, that at Highgate they had the ordinary National Schools for boys and girls, and infants of both sexes, and also a very good British School. The enlargement of the National School having become necessary, after much debate and opposition in the parish, it was determined to build new school rooms rather than enlarge and patch up the old buildings. The sum of £8,000 was expended in the purchase of $4\frac{1}{2}$ acres of freehold land, and the erection of large school-houses for boys and girls, and infants—together with lavatories and other appurtenances, besides three houses for the teachers. A spade-husbandry farm was provided for the boys, where they were instructed both in the theory and the practice of the cultivation of the soil, rotation of crops, &c., the management of a cow, bee keeping, the rearing of pigs, poultry, and rabbits, in which great interest was taken by the boys. As a reward of merit, a portion of ground was allotted to be cultivated for the benefit of the boy or that of his family. The spade husbandry farm had become self-supporting. The children were kept out of the streets. Twelve girls were boarded in the school, and, with others, were fully trained in cooking, washing, dairy and laundry work, making bread, cutting out and making clothes, and in general household work. The results were most satisfactory. After this training, the girls went out to service, and proved most efficient and valuable servants.

Mr. J. W. FOX, M.P. (Oldham Lyceum), thought this was a subject of too great importance to be entered upon at the fag end of the meeting; he was, nevertheless, obliged to Mr. Chester for the interesting statement with which he had favoured them. He thought there were various ways in which the Society might direct attention to this portion of female education, and he was glad to hear that the prizes offered by Lord Ashburton for "common things," included premiums to both sexes. They were apt to make too broad a distinction between the educational development of males and females. This Society might do good in the encouragement of classes for female education. He saw no reason why females should not compete for the honorary certificates awarded by the Society; for they might depend upon it, the better a female was educated, the more the female intellect was developed, the better qualified was she to fulfil the high and important functions of domestic life for which she was destined. They had seen a remarkable instance of the influence of well-educated women in the ladies who undertook the mission of Crimean nurses; and he hoped efforts would be made by the Institutions generally, to add classes for female edu-

cation to their other objects of usefulness. He looked to this as a means of enlarging the sphere of female employment, and opening out other modes of obtaining a livelihood than the factory. To promote such an object would confer honour upon this Society, and would add to the many acts of usefulness which it had already accomplished.

Mr. HIXON gave some details of the operation of classes for female education in Holmfirth, the results of which, he said, were highly satisfactory. He urged the institutions to take up this subject.

The CHAIRMAN expressed his acknowledgements to Mr. Chester for the valuable information he had given relative to the schools at Highgate, which went to prove that it was practicable to realise what he (Dr. Booth) had stated in theory.

TRADE SCHOOLS.

The Rev. Mr. BOWDITCH remarked, that a system of instruction with a view to the pursuits of after life, was the only thing which deserved the name of education. The old triplet—reading, writing, and arithmetic, were soon forgotten, if not cultivated with some ulterior object of usefulness; but where they were carried out to potential results, as in the case of the schools at Wandsworth and other places, those acquirements were the more diligently laboured for under the consciousness of the necessity of their application to their future wants in life. He instanced the beneficial working of such schools in his own parish in Wakefield, where the population of the lower classes, from being a byword and a reproach, had come into habits of industry and order.

Mr. BUCKMASTER remarked that he was connected with one of the first Trade Schools established in this country. The children who for the most part attended those schools, were not those taken from the ordinary National and British schools, but those of the better class of artizans and small tradesmen; and if there was one class more neglected than another, it was the class just named. With the exception of the College of Preceptors, the education of the middle classes of the country had been greatly neglected. Everything had been done for the two extreme ends of the lever; in the first case for the university class, and in the other case, for the very poorest class. With regard to the education of the working classes of this country, if it was to be of value at all, it must have reference to the practical affairs of every-day life; if not, it would certainly fail in its results. There were subjects with which all mechanics ought to be acquainted,—mensuration—practical geometry; and there were other subjects in which special classes ought to be instructed—chemistry and the elements of mathematics; and for the most part, they would find that these special teachings would have reference to the particular occupation which most obtained in the various localities. Boys ought to be made acquainted with the tools and appliances with which they would hereafter have to deal, and with the principles of the machinery with which they were to be brought into contact. He believed the trade schools were calculated to supply a deficiency which had hitherto existed. They had not as yet received the support and consideration to which he thought they were entitled from the public departments of the country. He felt that in course of time these schools would be found valuable aids to Mechanics' Institutions. To educate a boy properly, they must instruct him in that which he felt would be useful to him when he was grown up. When the Wandsworth Trade School was first started, they had only 15 pupils; now they had more than 100, out of a population of 9,600, and that without any special local circumstance or peculiarity to recommend it. Wherever there was a population of 1,500, with a person of energy, he believed the thing could be carried out, and when that was effected, such schools might be made supplemental to Mechanics' Institutes.

Mr. GORE said—Feeling the necessity for an improved system of artisan education, he thought it behoved the Mechanics' Institutions to look more than they had done to the development of these practical classes. In a recent visit to the Continent, witnessing the improvements which had taken place within the last seven or eight years in the mechanical and manufacturing powers of the people, he was led to seek the cause of it. It was evident to him there was something underlying the surface; and he had no doubt but that the whole resulted from the more perfect system of elementary education which the artisan there received. He looked upon this question as vitally connected with the manufactures of the country, and that our artisan population should be better educated in the use of the tools and machinery which they employed. He illustrated his argument by the statement of the results of instruction of a class of gas-makers in Leeds in the principles of the manufacture. Two years ago the manufacture of 11,000 cubic feet of gas was considered a fair day's work for a man; but at the present time they made 18,000 feet each per day, with the same material, and with less trouble than formerly they made the 11,000 feet. If education were carried into the manufactory and the workshop, the employer would be benefitted, because labour would be used to the greatest advantage; there would be less waste of material, and the results would be obtained with greater certainty.

Mr. LANE said he saw matter for great hope in these Trade Schools, and he felt it was a step in the right direction. Education must always have an upward tendency; it raised a man from the ranks of his own class to a rank above, till he reached the summit of the social ladder. The great evil at the present time was that they did not find mechanics in their Institutions; but let them bring the impulse of utility and growing power to bear, and they might hope to see the development of education from the lower truth to the higher truth.

RATING OF INSTITUTIONS.

The CHAIRMAN said this could hardly form the subject of discussion on the present occasion, inasmuch as the Bill in Parliament would come before the House again on the 2nd of July. He would therefore suggest to the members of Institutions—seeing the opposition which had been given to the Bill—the necessity of “putting the screw” upon their respective representatives in Parliament to obtain their support to the Bill. He also urged upon them to petition the legislature on the subject without delay. He called attention to a form of petition adopted by the Bristol Athenæum, which he thought was very much to the purpose.

Mr. HALSALL (Bristol Athenæum) stated that the form of petition had been sent to 300 Institutions. He thought it was matter of regret that no notice had been taken of this Bill in the last few publications of the Society, which led him to fear a lukewarmness upon the subject.

The CHAIRMAN remarked that the pledge given by the Society to prepare a bill on this subject, and submit it to Parliament, had been carried out to the strictest letter, and in perfect good faith. Objections to the Bill were raised in the House, when Mr. Hutt withdrew it, in order to have it re-committed. If there were any chance of the Bill passing, it would be by simultaneous petitioning and pressing the subject upon the attention of their representatives.

Mr. VALENTINE (London Mechanics' Institution) expressed his dissatisfaction at the Bill prepared by the Society; and he thought they had not entered upon the thing so warmly as its importance deserved. He did not think there was any chance of the Bill passing; and he believed that striking out the word “exclusively” rendered the Bill more objectionable than it was before, inasmuch as it would apply to every place of amusement or recreation where there happened to be lectures or a library. He feared that would lead to its rejection.

Mr. CHESTER thought the principle of exemption altogether objectionable; but he begged to state that he had nothing whatever to do with the preparation of the bill. He thought it, at the same time, due to the Council to say that they had done everything to the best of their judgment that was calculated to promote the object in view; but whenever the Council had asked for the support of particular members of parliament to the bill, the reply they received was that they were opposed to the whole thing. So long, however, as the principle of exemption was recognised, he thought it ought to apply to all alike. The Society of Arts had acted with perfect good-faith, and in accordance with the advice they received from members of parliament whom they considered competent to give it.

The CHAIRMAN said the committee appointed to act in this matter, in conjunction with the Society, had met, and gone into the subject most thoroughly. The Bill had been carried out *bona fide*, and in all good faith. If the Society had objected to the bill on principle, they would not have hesitated to say they would have nothing to do with it.

Mr. BLAKE stated he had received a letter from Mr. Hutt, stating that it was not intended to alter the bill. In the committee upon the bill, which sat on the 4th of June, the Lord Advocate proposed the insertion of a clause extending the operation of the bill to Scotland. The bill had been printed, and Mr. Hutt had stated that it was not intended to make any further amendments.

The CHAIRMAN remarked that Lord Campbell would probably give the bill the most determined opposition in the House of Lords; so that it behoved the delegates to bestir themselves.

The LORD MAYOR of YORK thought, if that were the case, there was little chance of success in the Lords. The Act of Parliament they had at present was a species of mockery. It proposed to relieve the Institutions from rating, but a word was put in which rendered it ineffective for that purpose.

The conversation then dropped.

Mr. CHESTER said it had been his intention to bring forward a subject which stood upon the paper, as “Suggestions for connecting Institutions with Elementary Examinations, by the Distribution of Prizes and the appointment of Honorary Associates;” but, at the late hour to which the Conference had extended, he would not do so on the present occasion, but hoped to introduce it at the meeting of 1857.

Mr. GORE moved the following resolution:—

“That the thanks of this Conference are eminently due to the Council of the Society of Arts for their exertions in developing a system of examinations for the members of Mechanics' and other Institutions; and this Conference is of opinion that such examinations are highly conducive to the advancement of education; and that the Council be requested to publish, as early as possible, the list of subjects and the extent of examination for 1857.”

This was seconded by Mr. D. BASS (Greenwich Society), and was carried by acclamation.

The Rev. Mr. BOWDITCH moved a vote of thanks to Dr. Booth for his able conduct in presiding over this Conference, and also for his exertions, both individually and in connection with the Society of Arts, in the promotion of education. They were much indebted to him for the ability and courtesy with which he had presided over the business of this day.

The vote having been carried by acclamation, and duly responded to, the Conference then broke up.

ONE HUNDRED AND SECOND ANNIVERSARY DINNER.

The One Hundred and Second Anniversary Dinner of the Society took place at the Crystal Palace, Sydenham, on Tuesday, the 24th of June. Nearly 400 gentlemen were present on the occasion. The chair was occupied by the Right Honorable Lord Ashburton, F.R.S., who was supported by General Sir Charles Pasley, K.C.B., Colonel Sabine, F.R.S., Mr. Alfred Tennyson, the Venerable Archdeacon Lane Freer, Mr. Harry Chester, Sir Watkin Pell, Dr. Sharpey, F.R.S., Captain Laws, R.N., Rev. Dr. Elder, Mr. A. Anderson, Mr. J. Scott, Rev. Professor Brewer, Professor Goodeve, Mr. J. Glaisher, F.R.S., Rev. A. Bath Power, A.M., Dr. Stenhouse, F.R.S., Mr. G. H. Jay, Mr. C. Brooke, M.A., F.R.S., Rev. W. Elliott, Dr. Bernays, Professor Brasseur, Mr. C. E. Weld, Mr. Charles Hill, the Mayor of Birmingham, Mr. W. Lucy, Dr. Waddilove, Mr. Alderman Spiers, Mr. W. De La Rue, F.R.S., Mr. F. Keats (Sheriff elect), Mr. W. Mackrell, Professor Tennant, &c.

The centre cross-table was occupied by the members of the Council of the Society, including Messrs. P. Graham, S. M. Hubert, J. C. Macdonald, Matthew Marshall, J. J. Mech (Sheriff elect), W. B. Simpson, T. Winkworth, with the Rev. Dr. Booth, F.R.S., Chairman of Council, as Vice-Chairman.

At the Art table were, among others, Dr. Waagen, Messrs. John Bell, Bicknell, F. S. Cary, J. Coe, J. G. Crace, M. Hanhart, C. Ionides, H. Mogford, J. B. Sedgwick, with Mr. David Roberts, R.A., as Vice-Chairman.

At the Manufactures table were, among others, Messrs. R. Milligan, M.P., C. Bagnall, J. M. Blashfield, J. Bull, R. L. Chance, A. Claudet, F.R.S., B. Edgington, R. T. Fauntleroy, G. N. Hooper, J. R. Lavanchy, J. Vavasseur, V. Wanostrocht, with Mr. H. W. Ripley as Vice-Chairman, Mr. Titus Salt, who was to have occupied this position, having been unable to do so owing to ill health.

At the Commerce table were, among others, Messrs. W. D. Asperne, F. Bennoch, W. Bird, J. E. Carlile, J. W. Gilbart, F.R.S., Professor Leone Levi, Vito Terni, with Mr. J. P. Gassiot, F.R.S., as Vice-Chairman, Mr. G. Moffatt, M.P., having been prevented from attending.

At the Colonial table were, among others, Messrs. Hyde Clarke, A. Henderson, T. L. Henley, J. W. Kaye, J. L. Keeling, G. Osborne, P. L. Simmonds, with Col. Sykes, F.R.S., Chairman of the East India Company, as Vice-Chairman.

At the Institutes table were, among others, the Lord Mayor of York, Rev. W. R. Bowditch, Rev. W. Taylor Jones, Messrs. G. M. Coppard, H. Gore, J. Hitchins, J. Hixon, E. Lane, G. Leeman, F. J. Macaulay, T. Martin, Alderman

Snow, J. Spanton, H. Whitfeld, J. Yates, F.R.S., with Mr. W. Ewart, M.P., as Vice-Chairman.

At the Agriculture table were, among others, Messrs. J. Caird, J. Bailey Denton, F. H. Elliott, G. A. Elliott, E. T. Mansell, J. C. Morton, with Mr. C. W. Hoskyns as Vice-Chairman.

At the Mechanics and Engineering table were, among others, Messrs. W. B. Adams, C. E. Amos, T. Aston, C. Atherton, J. Braithwaite, E. Chadwick, C. B. D. K. Clark, Sir Charles Fox, F.R.S., A. C. Hobbs, G. Lowe, F.R.S., J. E. McConnell, H. Maudslay, C. May, F.R.S., John Penn, R. Rawlinson, J. Scott Russell, F.R.S., T. Webster, F.R.S., C. W. Williams, with Mr. Joseph Whitworth as Vice-Chairman.

After dinner, the Venerable Archdeacon Lane Freer having said grace,

The CHAIRMAN gave as the first toast—"Our Sovereign Lady the Queen: Long may she live to enjoy the love and devotion of a loyal and grateful people." [Drunk with three times three.]

The CHAIRMAN then said, I give you—"The Health of our President, Prince Albert," and were I speaking as a lawyer for a verdict, my plea would be sufficient, my cause would be won; but, speaking as your chairman, I have other duties to perform. I have to be the spokesman of your feelings—I have to give embodiment to the associations which the mention of an honoured name raises up in your breasts. Prince Albert is our leader, in the sense that the Duke of Wellington was the leader of every regiment of his peninsular army. We do not actually find him by our side fighting every day in our ranks, but we constantly feel the impulse of his directing mind, and now, in this hour of need, we find him bringing up succour with timely care from other quarters to our rescue. (Cheers). For we cannot dissemble from ourselves the fact that up are at this moment engaged in a fight as it were against nature; we are attempting to infuse the feeling for art, and the knowledge of science from below; to educate the mechanic above those who have to estimate and judge his productions. And observe how the thing acts. If the customer entering a shop could distinguish between the skilled and unskilled tradesman—between the plumber who had learned the first principles of hydrostatics and hydraulics, and the plumber who had not,—there would soon be no ignorant plumbers; the skilled plumber would anxiously select skilled workmen to carry out his views with judgment and discretion, and the workman, finding knowledge necessary to secure employment, would readily pay a remunerative price for its acquisition. (Hear.) Such would be the natural course of things, but mark what takes place now. The customer knows nothing; the tradesman may succeed, though he know nothing. There are no schools organised to teach him, if he would learn,—the tradesman therefore remains ignorant, and woe betide the workman who pretends to know more than his master. If, therefore, we desire to instruct the community, we must begin at the top, not that the class of customers and employers is the most apt to learn,—far from it. The workman is half instructed already, and his mind, trained in the school of real life, has a more healthy energy than the minds of those who have been trained under the fictitious motives appealed to by the schoolmaster. (Hear.) But in order to induce the tired mechanic to study during his hours of rest, he must have some inducement beyond that of acquiring knowledge for its own sake; he must be paid for it in wages or in consideration, and that inducement he cannot hope for from ignorant employers. Prince Albert has felt this difficulty: a difficulty not within the compass of this Society to remove; and he has brought up succour to us from other quarters. He assigned to science and high art its

due place in the hierarchy of society; he has encouraged our scientific and artistic institutions, but above all he has adopted that course which among Englishmen is of most avail,—he has attended our public meetings, and has in his own person appealed to us to reform ourselves. (Cheers.) Those appeals at the time produced their effect, and would continue to work upon the public mind, if this Society would in its own interest, and in the interest of the cause it espouses, print and circulate Prince Albert's addresses for our use. (Hear, hear.) Meanwhile the movement of scientific and artistic knowledge among the upper classes is rapidly succeeding. By its success we shall be extricated from our embarrassments, and for its early success our thanks will be due to him who has placed himself at its head. I call upon you, therefore, to hail Prince Albert not only as our President, as our individual leader, but I call on you to hail him as the leader of that general intellectual movement in which we play only a subordinate part. (Applause.)

The CHAIRMAN again rose and said—The next toast he had to propose was, “The Health of His Royal Highness the Prince of Wales and the rest of the Royal Family,” which having been duly acknowledged,

The CHAIRMAN said—Though we are assembled here to-day in this gorgeous building, and feast our eyes upon the most beautiful works of man, you will still, I am sure, agree with me in thinking that we are not assembled solely for pastime and enjoyment. We are serious men, engaged in a serious pursuit, and even now, when resting from our work, we cannot forbear from looking back upon it, to see, not only that that is well done which we have done, but to see also that we have not left undone a part of that which was required to be done. There is no man I apprehend in this assembly who doubts the advantage of those public examinations and prizes which you have instituted. You have said to the adult mechanics of England—Here is the whole range of human knowledge classified and spread out for your view. Choose what you please; we are prepared to test and reward your proficiency, and here is a long list of employers who will accept our certificate as a title of merit. (Cheers). This is what you have said, and said wisely, but are you quite sure that in saying this you have completed your work; have you done all that was requisite to ensure its success? Just consider. The adult mechanic is to choose his subject of study. Is he capable of distinguishing useless from useful knowledge? If he be, then he is gifted with a tact and an insight far superior to that of those who have planned out our military examinations, than that of very many authors of educational works; then has he solved a question which still perplexes our Universities. (Hear, hear.) I dare say some one is at this moment whispering to his neighbour—there is no useless knowledge, and I agree with him in the sense of those who say also, there is no useless matter; Who dares affirm that there is any one useless work of God? Is there any one particle of dust beneath our feet which may not at some time be converted, by human ingenuity, to the use of man? And so it is with knowledge. But remember what we are about; we are fitting out a man for the struggles of life; we are not fitting up a storehouse for the use of a philosopher. Man goes forth into the world as a soldier goes forth into a campaign. His wants are boundless, his means of carriage are small. Can any service be greater than that of planning out and assorting his pack of knowledge, rejecting all that shall cumber his movements, selecting all that may afford materials for the business he has to do? (Hear, hear.) Surely there is no more urgent task for us to perform than that we should employ our wisest heads to consider man's powers, to consider man's necessities, to consider man's position in relation to his Maker, his duty to God, to himself, and to his neighbour, and then decide upon what principle that small pack of knowledge shall be composed which he can advantageously bear with him into life. (Cheers.) This is the question of questions; a question

affecting the instruction of our teachers, the composition of our schoolbooks, the examinations of our public services; a question the solution of which demands at once the highest qualification of the priest and of the philosopher, and we leave this question to be decided by the yet unlettered, unexperienced mechanic. No wonder that he is listless and hesitating in the pursuit of knowledge, when he is turned out like a child on the sea-beach to fill his lap with whatever may dazzle his eyes or captivate his fancy. No wonder that he soon tires, whatever may be the ardour with which he set out; no wonder that we make of no avail that sacred fervour for higher things, nobler interests, which God has at this moment vouchsafed in his mercy to inspire into our people. (Cheers.) You must, many of you, remember the year 1825, when a similar spirit pervaded the whole land; a cry went forth for a better cultivation. Men revolted at the mechanical toil in which they wasted their lives, forgetful that there is nothing degrading in mechanical pursuits save the mechanical spirit in which it is pursued. (Cheers.) The voice was heard, their complaint was appreciated; the rich came forth with their money, the learned with their counsel. Dr. Birkbeck and other ardent friends of humanity headed the movement; stately buildings were raised; lectures instituted; our hopes were as high then as they are now; and what is the issue; why at the very moment at which I speak there is scarce a Mechanics' Institute which can stand without foreign support, which can pay competent teachers, which could maintain its numbers without constant canvassings and revivals; the fact is that the majority of these Institutions, from the very beginning, had no real life, no inherent powers of motion within themselves; they were born dead. They were galvanised into momentary exertion by the active benevolence of individual founders and managers, but as soon as the external impulse ceased, the whole stopped or assumed a new form, impregnated by a vital principle of an altogether different nature from that originally contemplated. It was then that Mechanics' Institutions degenerated into reading-rooms for the middle classes, where their wives and daughters collected to hear lectures on the drama or music, or any popular topic of the day. And yet the want among the mechanics, which these Institutions sought to satisfy, was undoubted. That want, that craving, continues unabated in their breasts to the present day; if anything, it has grown and grown, in the midst of disappointed hopes and wasted expenditure.—Whence, then, this failure of support; whence this lack on their parts of all operative faith in our promises, of all remunerative demand for that which we propose to supply? It was because, from a want of funds, from a want of competent teachers, of proper school-books, of necessary models and diagrams, recourse was had to a desultory mode of teaching through casual or amateur lecturers. The character of such teaching could scarcely be favourable. Men learned to talk and write, rather than to reflect and act; a few only could derive that solid instruction, the fruit of systematic study, which strengthens and elevates the character; so it became possible that, among the most noted students there might be one who was at times less thrifty in his household, less steady in his conduct, than the jealous scrutiny of his plodding comrades would sanction; and it may, therefore, have happened that over-anxious wives and fathers have come almost to consider the Institute as a kind of intellectual gin-shop, disqualifying its frequenters for the plain duties of life. (Hear, hear.) Knowledge came thus to lose its due consideration, and the mass fell off one by one, to relapse into the more congenial condition of repose. It was because no means had been taken to call forth the spirit of competition to assist with its inspiring influence the love of knowledge for its own sake. It was because we attempted to induce men to toil for that which there was no demand, of which there was no recognition on the part of their employers or customers. Lastly, it was because we did then what we have done now; we introduced an ardent mind into a

wilderness of knowledge, without a guide, without even a clue. Such were our wants in 1825, and how do we stand now? An efficient remunerative demand for skilled labour has not as yet been satisfactorily established; the coach-maker, the ironmonger, the mechanic, the artist, inform themselves rather more from a sense of duty than from any reward they can realise from an undiscerning public; but the ignorance of past times is fast clearing away. The class of employers and customers is no longer satisfied with an education for their children based upon the practices of past ages; we are all gradually rising to the platform of knowledge worthy of the second half of the nineteenth century; competent teachers are in a course of rapid training; educational machinery is furnished by the government at a lower cost than even in France. You have evoked the spirit of competition, and you have done your best to obtain rewards for distinguished merit. There remains but one deficiency uncarved for—unthought of—and that is the solution of the problem: What is the pack of knowledge with which a man should set forth on the campaign of life? The soldier does not carry with him in his kit the clubs and foils by which his limbs have been trained—he leaves them behind him at the dépôt. The man soon forgets the dead languages and pure science by which his faculties were sharpened—he leaves them behind him at school. The soldier bears, in addition to his kit, the special arms of his service—the sword, the lance, or the rifle; so does the grown man add to the knowledge which it behoves him to possess as a man—the knowledge of the plumber, the mason, or the smith. There is no more need to specify what a profession requires, than to speculate for the baker what bread he shall bake. But after you have set aside the knowledge merely used for training the faculties, which is left behind after it has done its work, like the club of the recruit; after you have set aside the special professional knowledge which varies with the individual, which is dictated by the external demand of his special service, there still remains that pack of knowledge common to every man, to every service, which he must bear with him into life as the soldier bears his kit into the campaign, for the satisfaction of necessities. (Hear.) Man goes forth to deal with his brother man in society, to deal with the material world and the powers of nature; he has to preserve his own frame, to improve his faculties, to control his habits and affections. Above all, he has to discover the limited character of his own powers, and the necessary subordination of his petty exertions to the immutable laws of his Maker. Now there is no external demand for this knowledge; the demand must spring up in each man's breast according to the measure of his enlightenment. Can we expect that enlightenment in the young, in the inexperienced, in the illiterate. Is it not our duty to do something more than present the whole range of knowledge mapped out to their view and bid them choose? Is it not our duty to devote at once our utmost efforts to the solution of the question, What is the pack of knowledge which each man should carry with him into the world? His wants are boundless; his means of carriage are small; life is short; school time is shorter; knowledge is infinite—what shall his pack of knowledge be? I stop here, because the answer to this question involves matters too deep, too serious, for such an occasion as this. I stop here, because I have not the qualifications which befit an instructor of mankind. My part is rather to take post beside the beacon, in the faith that my eager care may so sharpen my perceptions as to descry betimes the rising evil, and call out to the rescue the good, the energetic, and the wise. I see them here before me. My work is done. Your work begins. The Noble Lord concluded by giving "Prosperity to the Society for the Encouragement of Arts, Manufactures, and Commerce," coupled with the name of the Rev. Dr. Booth, Chairman of the Council. (Great applause.)

The Rev. Dr. Booth, F.R.S., said—My lord and gentlemen, it becomes my duty, I believe, as Chairman

of the Council, to return thanks for the Society of Arts and its Executive Council. I should not otherwise have ventured to present myself to your notice. Although in our One Hundred and Second Year, our strength was never so great, our health so vigorous, or our financial position so prosperous. (Hear.) When, twelve months ago, the management of the affairs of the Society was placed in the hands of the present Council, we determined to discharge our trust with all the faithfulness and with all the energy we could command. The great event of this Session is the institution of a system of examinations for the benefit of those persons who attend classes at Mechanics' and other Institutions. In establishing examinations of this kind, we are, in fact, doing nothing more than developing, in the products of the intellect, that principle of competition which was inaugurated with so much success and with such a world-wide renown in the Great Exhibition of 1851. Our first examinations, extending over a period of four days, have been brought to a close, and I am happy to say they have been a real success. Not a few, but several, of the examiners state, that they have been astonished and delighted with the papers they have received. The examiners in chemistry, Professor Solly and Dr. Stenhouse, have so reported. Professor Solly says, "During the last dozen years, in the course of which I have examined many hundred students in chemistry, military, medical, and general classes, I never saw a better or more creditable set of replies. In this Dr. Stenhouse quite agrees with me; we were both equally struck with the general high standard of chemical knowledge shown by the candidates." In mathematics, Mr. Glaisher says the same. The answering in French and German was something remarkable, while in English history and English literature, the examiners were entirely unprepared for the amount of knowledge poured in upon them. In thus encouraging the pursuit of knowledge under difficulties, we are engaged in the most important task that could employ the energies of our Society. We have many qualifications for the office, not the least of which is that we belong to no sect, and we acknowledge no party. Now, who are these men who have displayed such brilliancy of talent, when the outer crust of the obscurity in which they lay concealed has been removed? Why, shopkeepers' boys, schoolmasters' assistants, merchants' clerks, carpenters' apprentices—men engaged from morning till evening in the daily discharge of those duties on which depended their daily bread. (Cheers.) Now, my lord, I say, without hesitation or fear of contradiction, that the Society of Arts has deserved well at the hands of the country, in drawing up to the light of day, from the "dark, unfathomed caves" of their obscurity, such men as these. Again, my lord and gentlemen, I thank you in my own name and that of the Council.

Mr. HARRY CHESTER then rose and said—Engaged as he was every morning with those who were officially occupied in the promotion of public education, he could not help thinking that upon this evening he had fallen into some magnified and multiplied Society of his colleagues, or of a Society for the Promotion of the Education of the People of this Country. It was, perhaps, unnecessary for him to call attention to the fact that they were a Society having more general objects. Although those objects could only be well promoted by improving and extending education, their objects were no less than the Encouragement of Arts, Manufactures, and Commerce; and he thought this was a most encouraging sign of these times, that in a Society having for its object the promotion of Arts, Manufactures, and Commerce, the subject which principally occupied their attention—which seemed to strike directly at all their feelings—was the education of the humbler classes of this nation. (Cheers.) He had been called upon by the Chairman to propose to them to drink "Prosperity to the Institutions in Union with the Society of Arts"—(cheers)—and having a somewhat parental right to propose that toast—having been the person to whom, by a happy accident, it fell originally to propose that the Me-

chanics' and Literary Institutions of the country should be united with this Society, he felt proud and happy to discharge that duty. He felt also, that, having been honoured with the office of Vice-President of the Society of Arts, he might with some propriety propose this toast, because it was impossible for the Society not to feel a deep interest in the welfare of the Institutions which were united with it. The Institutions now in union with the Society were no fewer than 340 in number—(hear, hear)—he believed he might say that they numbered at least 100,000 members; and he thought it was a small calculation which would tell them that the libraries of these Institutions contained at least two millions of volumes of books. (Hear, hear.) He hoped they would never become a Society having objects more contracted than these, or that those objects would ever be less appreciated than they were at the present time. He hoped this Society, although it had long contained upon its rolls the names of men of high honour in the annals of science, would never become a mere Scientific Association. They could never hope to successfully compete, for example, with the Royal Society, in promoting science in general; but whilst other bodies were aiming at promotion of specific branches of science, he trusted this Society would keep its objects wide and diffuse, embracing the applications of science and all that concerned Arts, Manufactures, and Commerce: that it should be—as Lord Granville happily expressed himself on a former occasion of anniversary celebration—a Society for the promotion of everything that was generally useful or good. (Loud cheers.) He was sorry that on this occasion they had not so many of the representatives of the Institutions in Union present as they had had in former years. That he believed had arisen from an accident beyond their own control. The Conference was held the day before, and it did not suit the convenience of the Directors of the Crystal Palace to let them dine in the building on the day of the Conference. He was sorry that the members who attended the Conference the day before were not present in the same numbers as usual. The Chairman of this assembly and the Chairman of the Council of the Society had both spoken upon the interesting subject of the examinations which had been recently so satisfactorily conducted. Those examinations, no doubt, had been a great success. He doubted whether anything more important for the promotion of education had been done in the last few years. But let them not conceal from themselves that, although in one respect the examinations had been a great success, on the other hand they had been a great failure: that is to say, they had been too much limited; they had not been generally available for Institutions in distant parts of the country, unless they were possessed of sufficient pecuniary resources to pay the expenses of members coming up to London for examination. He trusted that during the current year the Council would be able to enlarge their plans—that, without giving up anything they had done this year, they might do something more next year, and send their examination papers within the reach of every Institution in the country. (Hear, hear.) He thought they had reason to congratulate themselves upon the improved condition of the Institutions, comparing it with what it was when the Union was first formed. He thought they were improved in every respect; that their financial resources were better, that their objects were more vigorously carried out: they aimed at greater and more serious things without giving up the provision of amusements and recreations for the people amongst whom they were placed; and he believed that the introduction of examinations was calculated to convert these Institutions into what all most interested in them had desired them to be—really useful places of systematic instruction. (Hear, hear.) Since the Union had taken place it had been proved that "union is strength" both to the Society of Arts and to the Institutions themselves. They had been recognised by the legislature of the country: an Act

of Parliament had been passed, giving extraordinary advantages to the Institutions—such advantages as were enjoyed by no other bodies. The government had extended its grants to these Institutions, and he believed they had retrograded in nothing. He would couple with the toast he had to propose the name of a gentleman who had long been a friend to the Institutions and a friend to education—the name of Mr. Ewart, M.P. (Loud cheers.) In Mr. Ewart the members of these Institutions had always a friend: whenever their interests were brought before Parliament, no one was more ready to promote them than Mr. Ewart. He had the honour to propose "Prosperity to the Institutions in Union," and to couple with the toast the name of Mr. Ewart, one of the Vice-Presidents of the Society of Arts. (The toast was drunk with loud cheering.)

MR. EWART, M.P., rose, and said they could all remember the time when these Institutions—the Union of which they were met to celebrate—these Institutions founded originally by the happy genius of Dr. Birkbeck, and very much promoted by Lord Brougham and other friends of education, in what they might now consider distant times; they could remember when these Institutions were in a state of declension. He had watched their early adolescence; he had witnessed the decline of many, and the fall of some of them. He had long been a member of the London Mechanics' Institution. He knew not whether any members of that body were present. It was the first Institution of the kind that was founded in this country, but he was sorry to say it had now arrived at that period of its old age when he lamented to anticipate a very strong appearance of decrepitude. They found these Institutions in a state of decadence. What circumstance was it that first recalled them into existence—that resuscitated and revived them? It was simply the magic principle of Union. (Hear, hear.) In Yorkshire, in some parts of Lancashire, and in other parts of the country, the happy idea suggested itself, that it was not easy for those Societies to exist unless they were united. The Union of these Societies first laid the promise of their re-existence and revival. Many circumstances tended to favour this Union of the different Societies—there was the increased facility of transit—there was the enlarged means of communication with the Continent, which opened new sources of information—and, finally, there was the facility afforded by the educational departments of the Government. All these things united, pointed out not only the advantages, but the facility, of Union. Lastly, there came this Society itself, which, in a moment of happy inspiration, opened to the distant Societies of the country, those facilities which could not possibly be enjoyed by those Institutions so long as they were divided. These were circumstances of happy angury, which were seized upon by the Society of Arts and converted to the best account. He had the happiness of accompanying several gentlemen, officially connected with the Society, as a deputation to Lord Granville, not long since, when his lordship gave his consent on the part of Government to afford the same facilities to these Institutions as those which were afforded to the schools connected with the education of the country—he meant the advantage of obtaining cheap books and those other facilities, without which, all those Institutions, it was to be feared, would fail in their objects, because, although they had within them the spirit of learning, they had not the power to teach. He could have wished that the Government of the country—attentive to the people in matters of art, literature, and science, had taken advantage of the facilities of communication throughout the land, for the distribution in all our large towns of casts of the best of the works of art which antiquity had handed down to them, and without the help of which they could never attain a knowledge of or a correct taste for works of art. They had also, in the Society of Arts, a happy means of taking advantage of the benefits of Union—and that was, by the distribution of diagrams and the other familiar

modes of imparting knowledge, which the present times afforded to them. Lastly, the Society of Arts, as the noble Chairman and Mr. Chester had reminded them, had established a system of examinations. At the same time, he was one of those who thought that examinations might be carried too far. He thought over examination in our universities one of the causes why those universities had not attained the eminence which in former years attached to them; for over examination led to that which, in the familiar language of the universities, was designated "cramming." (Hear, hear, and laughter.) If the object be not knowledge for the love of knowledge; if it be for the sake merely of distinction, or some object of emulation, knowledge was degraded; and the man who sought knowledge for itself was worth twice the value of the man who sought it for the sake of some sudden ambition. While, therefore, he warmly approved, on general principles, of a sound system of examination, he was in favour of evoking the genius of the people of this country by affording all possible means of instruction, and he believed, although they might not have such eminent professors of knowledge, they would have more original thinkers, more men of genius, more men who, though they could not repeat a whole book, would have imbibed the spirit of a book. So far, he believed, a system of examination had somewhat tended to lower this country in comparison with other countries. He, therefore, thought the more assistance they gave the people, by which they could educate themselves, the more they would call forth the natural genius of the people, the more they would bring out their genuine taste for literature, science, and art; and although he agreed that those who chose should be examined, yet he thought those who educated themselves were the most genuine productions of nature, and would, in his opinion, in the present day, as they did in former times, shed the greatest glory and the greatest honour on their country. (Cheers.) But whatever might be the opinions which he thus incidentally uttered, in one point he knew they would all coincide, that was, that there was one means by which these Institutions could be maintained—could exist—could flourish—and that was by Union. (Hear, hear.) He had the honour of representing two Societies on that occasion—one in Scotland and one in England, both of them connected with agricultural districts, and he was sure if there was one means more calculated than another to infuse life and vigour into these Institutions, it was their union with this great central Society. Hence they would receive their impulse—hence their future and continued existence. It was, therefore, with the greater pleasure that on this occasion, thanking them for the patience with which they had listened to the few hurried remarks he had made, he avowed the most intimate conviction of his mind that there was one secret source of power in these Institutions, without which they could not continue to exist, and that source of power was Union! (Loud applause.)

Mr. J. P. GASSIOTT, F.R.S., said since he had entered the room the toast had been placed in his hands of "The development of the natural resources of the dependencies of Great Britain." (Cheers.) What a small part of this great system was the little island on which they lived. When they talked of the resources of their dependencies, he for one felt that they had been a little wanting in their duty to their children, in not bringing them forward fairly. He knew that he was addressing gentlemen of birth, station, and talent, and must, therefore, avoid any approach towards politics; but when he considered their colonial dependencies he could not help thinking, as a merchant of London, that the government had tried an experiment with the most eminent success, in placing at the head of our colony of Jamaica an English merchant, who was, however, about to be transferred to our colony of Australia. Under such a plan they need not fear but that the resources of our dependencies would be developed with the greatest vigour. But there was another dependency—our vast Indian Empire—(hear, hear)—

150,000,000 of people looking forward for that support from this country which they had ever received. He should be followed by the hon. and gallant gentleman who occupied the distinguished post of Chairman of the East India Company, and therefore he would be wanting in his duty to this assembly, and to himself, if he detained them any longer in introducing this toast to their notice. He begged to give them—"The development of the natural resources of the dependencies of Great Britain," leaving it for his gallant friend, Colonel Sykes, to respond to the toast. (Cheers.)

Col. SYKES, F.R.S., said, he, like his hon. friend who had just sat down, since he had come into that room had been told that he was expected to reply to a toast, which he much deplored, not only on his own account, but also upon theirs. The toast was nothing more nor less than—"The development of the natural resources of the dependencies of Great Britain." Where on earth were they to come to an end of them? If they went round the world, they found them as they proceeded, until they came back again. Therefore a very serious labour was imposed upon him, if they expected him to be a walking encyclopædia. But he was not; and, therefore, to talk of the development of the resources of he did not know how many colonies—he did not know all their names!—he would tell them plainly he could not do it. But they had a right to expect that he should say something about one great dependency. (Hear, hear.) He would tell them that had been developed, and developed with a vengeance—"Hear," and laughter—for, from one little factory, commenced in mere commercial speculation on the bank of the Ganges, and from another little factory at Surat, had been developed an empire of 150,000,000 of people, a revenue of £30,000,000 per annum, an army of 300,000 men in the highest state of discipline, and an empire which Alexander the Great and Augustus Cæsar might well have envied. (Cheers.) That was development. But if they talked of development, there were other things besides the development of the material resources: there was also mental development, as well as moral development. They had heard a good deal about mental development, without which there would be no material development. It was the precursor; the one followed the other as a natural sequence and consequence. With regard to the development of the material resources of India, two words would suffice for it. The exports from India had increased in the last 19 years from the value of £9,000,000 sterling to £20,000,000 sterling; and while the exports had increased to that amount, the products of India were of such value, and were in such demand from all parts of the world, that they, the people of Great Britain, could not pay for them with the products of their own industry—of their own skill—and of their own labour, so that they were obliged to have recourse to bullion to settle their accounts. Bullion was a commodity, but it was not to be handled like other things. They could not produce it like articles of cotton, or woollen, or hardware; it was got with difficulty, and taken great care of when got. That being the case, he thought it well for those who heard him to consider seriously whether it was not worth while for the manufacturers of this country to adapt their tastes and the products of their looms and factories to the tastes and wants of the people of India? (Hear, hear.) And he would tell them how that could be done. The people of India had their habits—their indelible habits. They wanted but little, but it must be of a certain character. He would tell the manufacturers around him that if they sent out to India turbans of a certain length and width, with a gold border at the end, they would be bought up by 150,000,000 of people. The women of India wore but one description of cloth. If the manufacturers chose to produce that particular fabric, they would have customers for the same in half the 150,000,000, assuming the proportion of males and females to be about equal in India. The same might be said with regard to other de-

scriptions of clothing. He would tell them what the Americans had done. An American ship reached the coast on the right bank of the Indus; the master of the vessel, having landed there, and bought specimens of every article of clothing that he could procure from the natives—articles as they were worn—he took them to America, and during the last year they had produced those articles in the exact form and fabric which suited the tastes and wants of the people of India, at a cheaper rate than they were selling in the native markets. What was to prevent the manufacturers of this country doing the same thing? (Hear, hear.) As to the mental resources of India, he was happy to say the people were progressing in the most remarkable manner in some of the higher branches of science. It was true the natives of India did not discuss questions of metaphysics, but they were beginning to be taught the useful arts, and he had just received a beautiful specimen of photography from Bombay, the work of a native. He might mention also, as a curious fact, with regard to mental development in India, that in the administration of justice—he dare say there were not ten persons present who were aware of the fact—that 99 courts out of every 100 were conducted by native judges, well and honestly, and with fewer appeals than was the case with regard to their European superiors. (Hear, hear.) Now, although he could say nothing with regard to the ninety-and-nine other dependencies of this empire, yet they might judge of what they were doing by the fact demonstrated during the last year in the returns of the Custom-house, that in time of war—in time of distress—they found the Custom-house returns were larger than they were the year before. These were proofs of the development of the resources of our dependencies throughout the world. Commerce had flourished in spite of the horrors of war. (Hear, hear.) There was another proof of the well-being and development of the resources of our dependencies. Most of them knew what the excise duties were, but he apprehended very few of them had ascertained what it had cost the people of this country owing to the increased price of bread during the last two years. The people had paid £32,000,000 sterling more than in the former period. What was the result? The excise duties were larger last year than they were the year before—such were the extraordinary national resources of this amazing country and this singularly industrious and rich people. (Hear, hear.) If he said no more he could say this honestly—he acknowledged with great gratitude the honour which had been done him in connecting his name with this toast on the present occasion. (Loud cheering.)

The CHAIRMAN then rose, and said he had the satisfaction of proposing the toast of "The Learned Societies," coupling with it the name of Colonel Sabine. (Loud applause.) He would only remark that these learned societies were brother sufferers from the same cause—the ignorance, the general ignorance, of the people. It seemed to him a reproach upon the people of this country, that the discovery of a new era in science or art produced less effect upon the public mind than a flourishing speech in a public assembly. They were in the habit of doing their business more by talking than any other nation; but, unfortunately, they could not understand the merits of those scientific men who were laying up imperishable glory for themselves in the annals of the human race. He believed the name of Faraday would scarcely be received with deference if it did not come invested with honour from abroad; in short, it was from abroad that they derived the honour of his name rather than what they knew of him themselves; but better days were coming. They had heard that day a gentleman who was going to reform our public servants—our ambassadors—our governors—our diplomatists—our soldiers—in short, the education of the country. He hoped, at the same time, the hon. gentleman would induce his own friends to educate themselves also—(hear, hear, and laughter), for they all needed education. He (the Chairman) was

in Manchester a few days ago, and went over a public building there. He found the iron columns which supported the building were constructed in that form which was least adapted to sustain pressure; and yet the architect who designed that building was a man in high repute, and had been specially selected for that office. He, therefore, trusted the architects would educate themselves. He trusted also, the lawyers generally throughout England, would educate themselves. He hoped that they should find that the lawyer knew something of rational law, and not hurry into courts of justice with that bastard law, which was founded on past rules, and past and exploded precedents. (Hear, hear.) And he hoped further, that the trading classes of this country would educate themselves; he hoped that members of Parliament would instruct themselves; for they saw very little of statesmanship—very little of the knowledge of those principles which alone should dictate the government of a great country like this. (Loud applause.)

Col. SABINE, F.R.S., said he would, in the first place, on behalf of his colleagues present, return his best thanks for the kind manner in which the toast had been proposed and received. If circumstances permitted him to say more than a few words on the present occasion, he doubted whether he could find a more important theme than the advantages which arose from the establishment of the most intimate connection between the Societies instituted for the promotion of science and those established for the cultivation of the arts; nor did he think he could find a place more fertile in argument in support of that assertion than the magnificent building in which they were assembled, with all its wondrous contents. (Hear, hear.) It would be superfluous to address any arguments to the present company in respect of the importance of the connection between art and science. If any man doubted it, he would recommend him to take a walk through this noble building, and attend to the reflections that sprung up in his mind, which would convey more than any address he could make. In acknowledgement of the toast so kindly given, he begged leave, on behalf of the Learned Societies, to express their sense of the honour that had been conferred upon them; also, to express their sincere and most cordial wishes for the continued prosperity of the Society of Arts; and, further, to express the great gratification he had felt at hearing of its most useful labours, during the last year, from its most respected Chairman of the Council—Dr. Booth. (Cheers.)

Sir CHARLES FOX said, he was afraid that the task which had been confided to him would be fulfilled in a very inadequate manner. He had to propose the health of those gentlemen who had presented to the Society of Arts the valuable papers that had been read during the present session. (Cheers.) It happened most unfortunately that he had not heard one of those papers, but as he was to be followed by Mr. Wren Hoskyns, who knew all about them, that gentleman would be able to tell them all that was necessary in reference to those valuable papers. Therefore, departing from that subject, if they would bear with him for a few moments, he would express the great pleasure he felt in being a member of the Society of Arts, being, as he was, so intimately connected with manufactures, and knowing so well the feelings of the working classes. (Hear, hear.) When they looked around and saw the great power of England, and asked the question whence had we derived that power, they were obliged to come to the conclusion that they had obtained it in a great measure from the machinery that they possessed. If they looked to other nations they would find that the less wealthy possessed the less machinery. The only means of producing wealth, or nearly so, was by the use of the human hand or the machinery which represented that hand—(hear, hear)—and therefore that nation which paid the greatest attention to the improvement and extension of its machinery must take precedence of the world, and he thought he might say that England had taken that precedence. As no one was so likely

to bring about improvements in machinery as those persons who, day by day, used the machinery, he looked with pleasure upon these Institutions, because it was the desire of all connected with them to draw out the talents of the working classes. He looked upon every working man as just as valuable a member of society as any man who sat at these tables—(hear, hear)—and further, he looked upon the happiness of the working classes as just as valuable as that of any one around him; and it was his most earnest desire that the employers of labour should not neglect those who, proceeding from the same common stock, had the same feelings—the same desire for, and the same appreciation of, happiness, and the same capacity for enjoyment, as those whom Providence had placed in a higher sphere of life. (Hear, hear.) There must necessarily be various spheres of society. He was himself a workman once—(cheers)—and he had felt so much for the treatment which workmen generally received (and he was sorry to say it was not the treatment they ought to receive)—he had felt so much upon this subject that he made up his mind twenty years ago, when he ceased to be a workman, that no man in his service should ever receive an unkind expression from his lips—(loud cheers)—and they would excuse him when he added no man of his ever had. He wished to say to all who were gathered around him that if they desired to be happy they would consult the happiness of those who were dependent upon them. That man who looked to himself alone, and desired to produce his own happiness as an isolated being, would fail in doing so. That man would be happiest who took care, every day of his life, to look around him in order to produce the greatest amount of happiness to others. (Hear, hear.) He would then find a number of reflecting surfaces around him which would send back to him as to a focus an amount of delight which no one could conceive who had not placed himself in that position. (Loud cheers.) He begged to propose the health of the gentlemen who had read papers at the Society's meetings during the past session, coupling with it the name of Mr. C. Wren Hoskyns. (Drunk with cheers.)

Mr. C. WREN HOSKYNs said, before saying a word in answer to the toast which he had the privilege to hear coupled with his own name, he might be permitted to say a word as to the great loss which he and others near him had experienced in not being able to hear many of the valuable expressions which had fallen from the noble Chairman and other gentlemen who had addressed them. He trusted that on a future occasion they would not have to lament the loss of so much valuable matter, which, in his own case he most particularly experienced, inasmuch as it was with the utmost difficulty that he could catch a few of the words of the gentleman who had mentioned his name in connection with the toast now proposed. He need not add with what pleasure it was that he was able to catch the few expressions that had reached him. Agriculture was the subject with which he was peculiarly connected. He had had the honour of reading a paper before the Society on that subject during the late session, and he would bring forward agriculture as a sphere of occupation in which the truths just enunciated by Sir Charles Fox were more steadily impressed upon the mind than, perhaps, in any other sphere of employment. As an employer of labour he could himself testify to the fact as to the focus of happiness a man found in his own breast from the exercise of kind treatment—the employment of the kind word to their workmen; and in no sphere of life was this more exemplified than in the walks of agricultural pursuits. He felt sensible that those remarks were not altogether impertinent to the objects of this Society, because it had had the great advantage of embracing in one union all those topics which had hitherto the effect of separating men instead of cementing them, and perhaps in no more remarkable instance than that of agriculture, of which this Society was one of the first promoters, and of which thousands of acres testified to the

activity of this Society long before the various agricultural societies which now exist had any origin or existence. (Hear, hear.) He had a great deal to thank this Society for, in the interest it had always shown towards agriculture; and he was gratified to find that that interest had not been suspended, although the subject had been taken up in greater detail by a society which peculiarly addressed itself to that object. He believed he might say that agriculture, which formed so large a proportion of the art of mankind—although it played but a subordinate part compared with the immense advancement of the other arts during the last century—yet, during the last twenty years, if a comparison were instituted between the progress in the other arts, or in the sciences which controlled the results of any other art, and the progress of science connected with agriculture, he believed that the latter would be found fairly abreast with almost any other science that could be mentioned. He had been lately a witness of the controversies between Liebig and our own great experimentalist, Mr. Lawes. He believed in that controversy would be found matter of the deepest interest with regard to the constituents of the soil, and the crops to be derived from it. It was a remarkable fact that agriculture had received its greatest advancement from a science with which it was formerly supposed to have no connection. To the improvements in chemistry they were indebted for the great advancement which agriculture had already made. (Hear, hear.) He would content himself by thanking them most heartily for the gratifying interest they had shown for those gentlemen who had read the papers before the Society during the last session. He begged to thank them on their behalf, and to express the gratification he felt at the interest which had been taken in the cause of agriculture by this Society. (Loud cheering.)

Mr. J. J. MECHI said he had been entrusted with a toast, which was "The health of the Society's Examiners." (Cheers.) They owed to those gentlemen a deep debt of gratitude. A number of the most learned men of the present day had devoted much valuable time, without any other remuneration than the thanks of the Society, to an examination into the qualifications of those candidates who had entered themselves as competitors for the Society's prizes. The results of their labours had been to develop an amount of talent which redounded to the honour of the country, and it proved that they had a vast amount of hidden treasure, which only required such an Institution and such prizes to develop. (Hear, hear.) The Almighty gave mind—man only gave education; and he believed they had in this country such fields of mental fertility yet untilled that would produce the happiest results upon society at large, if they only gave the right materials to till them with. (Cheers.) To that end they must, in the early stages, give education—and afterwards give opportunity. The scholastic state of the agricultural districts was disgraceful. In the parish in which he resided, with 5,000 acres, and a population of 1,500, the whole amount of education was imparted in a room 11 feet by 17 feet, by an old dame, who received £15 per annum. That was not a single instance, but might be greatly multiplied. But, supposing they gave education in early days, they must bear in mind that there was a great deal to be done in the adult period of life: and much as he admired these Institutions for adult education, unless they gave their workmen fair and reasonable opportunity to devote to these Institutions, they could not be properly followed up,—and he thought in connection with that subject the early closing movement had a most material relation. He would say, give education to the young, and opportunity to the elder branches of society to improve and benefit by these excellent Institutions. (Loud applause.)

Professor BREWER, in returning thanks for the toast, said, he would not detain them with any lengthened remarks. They had been so kind as to drink the health of the Examiners. All he could say was, the examiners

had been happy to give their assistance to a Society which had so long devoted itself to the educational improvement of the working classes, and this was one of the most gratifying features of the case, that almost every gentleman who had been applied to had freely come forward to lend his aid on so interesting an occasion. There had also been the most complete harmony between all the parties concerned in the examinations. That was a gratifying fact at this moment, because it showed, whatever theories men might entertain in their study, when they came forward to work in matters of education, they could be thoroughly agreed. (Cheers.) The good sense of Englishmen would always direct them what was right to be done. He would say one word on the character of the late examination. There were 52 candidates, and two only were first rejected. He had the pleasure of being employed in three different sections, and he would add his testimony to that of the Chairman of Council, that the papers of these young men were most remarkable for precision, for accuracy, and for good English, whilst their writing was beyond all praise. (Loud cheers.) These were qualifications highly desirable in those whose education they wished to advance, and he might remark that in other examinations in which he had taken part, those qualifications had been peculiarly defective. He would add that the papers he received, in conjunction with his friend Mr. Temple, of the examinations in history, were of that first-rate kind that the examiners felt themselves justified in giving five or six first-class certificates, and had it been possible they would have been glad to have presented more than one candidate for the premium awarded by the Society for this subject of examination. The same might be said with regard to the examination in English literature, and he was sure he expressed the opinion of all who took part in the examinations, when he said the general proficiency of those who came before them was far beyond the expectation of those by whom the examinations had been conducted. (Loud applause.)

Mr. THOS. WEBSTER, F.R.S., said he had a grateful duty to perform in proposing the health of the noble Chairman. It was unnecessary for him to dilate at any length upon the great services which Lord Ashburton had rendered to the cause which they were assembled to promote. They had heard from Col. Sykes the great developments which had been going on in our dependencies abroad, and he (Mr. Webster) could not but look at the development which had taken place with regard to the Society of Arts as one of the greatest developments the world had ever seen; for it was not many years ago when it was considered by some that the Society was of no use at all; but within the last ten years it had become confessedly one of the most serviceable societies that any country ever saw. It was true, as Mr. Hoskyns had observed, that agriculture was one of the earliest subjects to which it directed its attention; but one of the great merits, if not the greatest merit of the Society of Arts was this—that it directed itself to whatever was most wanted—(hear, hear)—and they had always found in their noble Chairman one ever ready to throw himself into the breach to carry out anything that was most wanted for the good of the people. They had heard of “bastard law.” Having himself something to do with the legal profession, he was delighted to hear that expression from the lips of the Chairman; and having regard to his lordship’s practical experience, and the energy with which he carried out everything which he took in hand, he (Mr. Webster) hoped he should see his lordship originating and carrying out reforms in that department, in which the practical experience and ability of men of his character would be of the greatest service. (Loud cheering.)

The toast was drunk with three times three.

The NOBLE CHAIRMAN, in acknowledging the toast, said, his name had been mentioned in connection with improvements of the law. He agreed that the time was come when those improvements ought to be carried into effect. They had extricated the Bible from the hands of the

priests, and they now possessed it in a language they could all understand. He was also in hopes that they might eventually get the law books out of the hands of the lawyers. (Loud laughter.) But he must be a bold man who would enter upon that task. It was quite as much as he could do to deal with the schoolmasters. It was with the most anxious attention that he had watched the proceedings of this Society. Day by day it had given the promise of greater things, and he saw at this moment, “looming in the distance,” no better promise of advancement than that which was derived from the union of these Institutions. (Cheers.) He felt much honoured by having had the privilege of presiding on this occasion, and he should be rejoiced if any poor efforts of his had assisted them in any way. (Much applause.)

The company then separated.

ANNUAL GENERAL MEETING.

WEDNESDAY, JUNE 25, 1856.

The Annual General Meeting for receiving the Council’s Report, and the Treasurers’ Statement of the Receipts, Payments, and Expenditure during the past year, and also for the Election of Officers, was held on Wednesday, the 25th inst., at 4 p.m. The Rev. Dr. Booth, F.R.S., Chairman of Council, presided.

The Chairman, in opening the proceedings, said, that by the bye-laws, he was directed to nominate two gentlemen to act as scrutineers of the ballot for the election of officers. He would ask Messrs. Dennis and Coleman to undertake that office.

These gentlemen having consented to act, the Chairman declared the ballot open. He then called upon the Secretary to read the

ANNUAL REPORT.

It becomes the duty of your Council on this, the formal resignation of their trust, into your hands, to render to you a clear and comprehensive account of their management of your affairs, and to give you a narrative of those events which have marked the progress of your Society during their year of office. To be full and unreserved in the statements we lay before you, frank and candid in the explanations we may be called upon to make, free and open in the answers we shall give to the questions asked of us, is especially our duty, because no other opportunity is afforded during the course of the year to the members of the Society at large to criticise or discuss the measures of the Council than this, the Annual General Meeting; and still further on this ground, that the members of the Society generally are always disposed to place almost unlimited confidence in the discretion and energy of their Council. At the opening of this now closing session we were somewhat large in our promises, and sanguine in our anticipations; it is for you to judge whether the actual performance has realised your expectations.

VISIT TO PARIS.

The first event which signalised our year

of office was the visit of your Society to Paris, with its associated Institutions, made at the suggestion of our illustrious President, the Prince. It hardly needs that we should recall to your minds the particular features of an occurrence which must have left on the minds of most of us recollections not less pleasing than enduring. It is a wise policy, whether regarded as promoting a national fraternity, or as facilitating individual acquaintance, or cementing personal friendships, thus to encourage the mingling together of large masses of men with all their nationalities about them, and their prejudices fresh upon them. To amalgamate, even for a time, however short, so many human atoms, who, but for occasions such as these, would never have come into contact, to transform their repulsions into affinities, to enable them to see with their own eyes that Providence "has made of one blood all nations of men," is a work of true wisdom, and one that perhaps as much as any other ensures the stability of peace.

REVISION OF BYE-LAWS.

The first special task on which your Council entered was a thorough revision of the Bye-laws of the Society. They were enacted immediately after the close of the Great Exhibition, of which this house was unquestionably the cradle. They were framed on the supposition that it was about to become a permanent institution of the country, and that our Society was to continue in close and friendly connection with it. These expectations, as you all know, have not been realised. The building in Hyde-park ceased to exist, and the bye-laws became obsolete and impracticable. It was impossible to observe rules which had reference to a state of things that was never in being. The changes in the bye-laws touch no principle already established by the Society. They are rather a series of small reforms and practical improvements suggested by experience. One of them is that, instead of three general meetings for different objects, assembling at inconvenient hours, we have now but one stated Annual General Meeting, on the last Wednesday in June.

COMMON SEAL.

As bearing upon this matter, it may be mentioned that we have cancelled the Common Seal of the Society and adopted a new one, better fitted for use. It will be attached to the certificates and diplomas we are about to issue.

PATENT LAWS.

Among the many important subjects which have engaged the attention of the Council during the past Session, is the present state of the Patent Office, and what it ought to be. One of our Vice-Presidents, Sir Joseph Paxton, in a communication which he addressed to the Council, gave a lucid, comprehensive, and

mastery view of the whole question. In consequence of this appeal, the attention of the public, although at the time much pre-occupied with the events and details of the war, was drawn to the matter, and a committee formed, comprising amongst its members some of the very highest authorities in science and manufacturing industry. The British Association for the Advancement of Science has also taken up the subject, and the strong representations of both committees are now before the Lord Chancellor for his consideration. We need not give you the list of them on the present occasion, as they have already been published in the Society's *Journal* of the 1st of last February.

RATING BILL.

We have next to call your attention to the Bill for amending the Act for exempting Literary and Scientific Institutions from local rates, brought into the House of Commons by three of our members, Mr. Hutt, Mr. Ewart, and Lord Stanley. There is no measure which has been more anxiously pressed upon the notice of the Council than this. At successive Conferences, the representatives of the associated Institutions have urged us to take steps to obtain a parliamentary decision of the question. To meet the wishes of the Institutions, the Council have had a Bill prepared by an eminent lawyer, and, although its clauses are very tame indeed, being merely declaratory and not enacting, it has met with the most strenuous opposition in its passage through the House. So strong has been the feeling against it, that Mr. Hutt has been compelled to withdraw the Bill to have it recommitted. We should only deceive the Society, and especially the Institutions in Union, were we to hold out any very confident expectation that a satisfactory Act in the present temper of the Legislature can be obtained. The Council, however, will not relax their exertions to secure, if possible, the passing of the Bill.

SUPPLY OF TEXT-BOOKS.

There is, however, another measure which bears directly on the welfare and usefulness of the Mechanics' Institutions, with respect to which we have achieved a more decided success. We refer to the valuable privilege so liberally and so frankly conceded by the President of the Council to our representations. Under this concession the Institutions associated with the Society of Arts may supply themselves, at little more than half price, with books, maps, models, and other scientific apparatus for educational purposes. And the Council cannot but hope that the same liberal and comprehensive policy will afford at least partial aid to Institutions whose managers may desire to establish class teaching and to provide well qualified teachers to conduct it.

LIST OF LECTURERS, &c.

While on this point it is proper to mention that

an important Manual—a Directory of Lecturers, has been prepared by our Secretary, for the use of such Institutions as may desire to enter into arrangements with lecturers. To this is added a priced list of Diagrams and apparatus, suited for the use of the lecturer or class teacher. It will be found, we have no doubt, a book of reference of much value to the Secretaries of Literary Societies generally, and will much facilitate their arrangements, as well as give them an ampler choice of selection.

ECONOMIC MUSEUMS.

Mr. Twining, whose philanthropic labours are so well known to the members of this Society, and to the public generally, whose disinterested exertions to promote the domestic comforts of the poor, have received in foreign countries, especially in France, ample acknowledgment and honorary reward, has been engaged, under the sanction of our Society, in advocating the utility and aiding in the establishment of Economic Museums for the use of the working classes. It is indeed to be regretted that the delicate state of Mr. Twining's health has delayed the arrangements and display of the materials he collected. At the International Congress which is to assemble at Brussels in the autumn of this year, the subject of Economic Museums, on Mr. Twining's plan, will form an important feature. The Council beg to draw the attention of the members of the Society, and of manufacturers generally, to the opportunity which will be then afforded for the display of those articles which tend to promote the domestic comfort of the poorer classes.

EVENING MEETINGS.

During the past year our evening meetings have been well attended, and they still continue the important feature in the proceedings of our Society. The Council believe they have been eminently fortunate in securing the services of men who hold the very highest rank as authorities on the subjects about which they have communicated, always interesting and frequently novel as well as valuable information.

The Council found it a matter of much difficulty to decide on the award of the Medals, so many of the papers reached to a high degree of excellence.

The following Medals have been awarded:—

To Mr. J. Kenyon Blackwell, F.G.S., for his paper "On the Iron Industry of Great Britain with Reference to that of other Countries." *The Society's Silver Medal.*

To Mr. Humphrey Chamberlain, for his paper, "On the Manufacture of Bricks by Machinery" and "On the Drying and Burning of Bricks." *The Society's Silver Medal.*

To Mr. John Bailey Denton, for his paper "On the Progress and Results of the Under-Drainage of Land in Great Britain." *The Society's Silver Medal.*

To Mr. William Felkin, for his paper "On the History and Present State of the Machine-Wrought Lace Trade." *The Society's Silver Medal.*

To Mr. Chandos Wren Hoskyns, for his paper "On the Progress of Agriculture During the Past Fifteen Years." *The Society's Silver Medal.*

The papers read by Mr. William Hawes, Mr. G. F. Wilson, F.R.S., and Mr. Winkworth, have not been taken into consideration in the award of the Medals, as Members of the Council are precluded from receiving the rewards of the Society.

USEFUL INVENTIONS.

It is the hereditary policy of the Society, and has long been the practice of the Council, to award its distinctions to the contrivers of useful inventions and to the discoverers of valuable products.

It gives us much pleasure to be enabled on the present occasion to comply with the traditional usage of the Society, and to announce that the following Medals have been awarded:—

To Professor Clark, M.D., of Marischal College and University, Aberdeen, for his "Application of Lime to the Softening and Purifying of Water for the supply of Towns." *The Society's Silver Medal.*

To Herr Paul Pretsch, late Manager of the Imperial Printing Office, Vienna, for his "Application of Photography and the Electrotyping to the Production of Engraved Copper-plates for Printing." *The Society's Silver Medal.*

To Mr. James King, for the "Importation of Wine, the Growth of Vineyards in New South Wales." *The Society's Silver Medal.*

With regard to this last reward, it is proper to observe that, in 1845, the Society's Medal was awarded to Messrs. McArthur for the importation of wines from Australia, the Messrs. McArthur having been induced, by the Society's offer of reward, to attempt the cultivation of the vine in New South Wales.

SPECIAL PRIZES.

The Society's Gold Medal—value Twenty-five guineas, has been awarded by the judges appointed by the Council, to Mr. Charles Wye Williams, for his Essay "On the Smoke Nuisance."

The Society's Silver Medal has been awarded to Mr. Charles Hood, F.R.S., for his Essay on the same subject.

UNION OF COLONIAL INSTITUTIONS.

The Council, ever desirous to widen the sphere of the Society's influence, and to enlarge its borders, swayed, too, we are bound to say, by strong representations from abroad, have determined, during the past session, to extend the privileges of union to the scientific and literary societies of the British Colonies. And we are rejoiced to report that within a comparatively short period

several Colonial Institutions have become associated with us. Of these may be mentioned the Royal Society of Arts of Jamaica, the Fredericton Athenæum of New Brunswick, and the Agricultural and Horticultural Society of India, Calcutta.

You will find the conditions of Union in No. 161 of the *Journal of the Society of Arts*, being the number for the 21st of December, 1855.*

We cannot refrain from saying that nothing would tend more intimately to unite together

* The conditions are reprinted here for convenience of reference :—

UNION OF COLONIAL SCIENTIFIC INSTITUTIONS WITH THE SOCIETY OF ARTS.

The Council of the Society of Arts, having received an application from the Jamaica Society of Arts to be taken into Union, on the same footing as the Mechanics' Institutions of Great Britain and Ireland, have had under consideration for some time past the means of most effectually extending the benefits of the principles of association and co-operation to similar Societies throughout the British Colonies and India. With this view they have laid down the following conditions and terms of Union:—

I.—The Society of Arts is prepared to receive into Union any Institution, established in a British Colony, or in the British Possessions in India, for the advancement of Literature and Science, or for the encouragement of Arts, Manufactures, and Commerce.

II.—It shall be the duty of the Officers of the Society of Arts to correspond with the Secretaries of such Associated Colonial Institutions, on matters relating to their recognised objects.

III.—The productions or manufactures of a Colony, transmitted by a Colonial Associated Institution, shall receive all due publicity, by means of the Society's Exhibitions, Publications, and Discussions.

IV.—The weekly *Journal* of the Society, with its other publications, shall be duly forwarded to every Associated Colonial Institution, and a portion of the columns of the *Journal* shall be reserved for Colonial Discussions and Correspondence.

V.—Whenevver any member of an Associated Colonial Institution, bearing a letter of introduction from its Secretary, shall visit London, he may enjoy the usual privileges of a Corresponding Member of the Society of Arts during his stay, and may have his letters addressed to him at the Society's House in the Adelphi.

VI.—The Council will afford their advice and assistance to any Colonial Associated Institution which may desire to obtain in England or France any scientific or educational apparatus, and will obtain and furnish to any Colonial Associated Institution reports on any produce sent over for examination.

VII.—A Colonial Associated Institution shall have the privilege of purchasing books through the Society's agency on the same scale of reduction as is now granted to Home Associated Institutions.

VIII.—The system of examination proposed to be instituted by the Society of Arts shall be extended so as to embrace candidates who shall have duly attended classes at Colonial Associated Institutions, and certificates of merit shall be awarded by the Society's examiners on examination papers duly authenticated and remitted from the Colonies.

IX.—A Colonial Institution may be admitted into Union on the same terms as a Home Institution, namely, an annual payment of two guineas.

(By order.)

PETER LE NEVE FOSTER, M.A., *Secretary.*
Society's House, Adelphi, London,
Dec. 19, 1856.

Englishmen of every colony and clime into one compacted mass of loving and loyal subjects than the free and full participation in all the privileges and benefits of the laws and institutions of the mother country by our fellow-countrymen abroad. Surely we have had no reason to regret that Nova Scotia was permitted to testify her sympathy with us by sending to our aid Sir William Williams of Kars.

HONORARY LOCAL SECRETARIES.

Moved still further by the same desire to render your Society all-embracing in its influences, the Council have sought the aid of men of high standing and varied attainments to discharge the duties of Honorary Local Secretaries. As the memorandum which was drawn up and presented to the Council some short time ago by a committee of its members, appointed to investigate and report on the subject, was printed in the Society's *Journal** very recently, we need not occupy your time with reading it here. We have as yet made but few appointments to the office, but amongst those we have selected are, Mr. W. Felkin, of Nottingham, Mr. Sands Cox, of Birmingham, Mr. John Waterhouse, of Halifax, Mr. Tatt, of Cheltenham.

EXAMINATIONS.

I come now to the great movement of the present Session—the institution of a system of periodical examinations. Causes to which it is needless here more particularly to refer, delayed the

* HONORARY LOCAL SECRETARIES OF THE SOCIETY OF ARTS.

The Council have resolved to appoint Honorary Local Secretaries of the Society of Arts in the several provincial cities and large towns of the United Kingdom. The Society of Arts has long felt the need of authentic sources of local information and the want of provincial co-operation.

The approbation with which its measures have been generally received, proves that the sympathies of the country, when elicited and tested, are with it. But sympathy is not enough,—active co-operation is required. There are besides many subjects of national and local importance on which accurate information in abundance exists, but it cannot be turned to general account because not generally known.

To multiply the centres of the Society's operations, and to direct the energies of many who are prepared zealously to aid the Society, if they could but see the way to do so, the Council propose to invite gentlemen of standing and of influence in their respective neighbourhoods to undertake the office of Honorary Local Secretary of the Society of Arts. They will receive the Society's *Journal* and other published documents from time to time; and the facilities of an office for receiving and forwarding letters, books, &c., will be afforded them at the Society's House in the Adelphi. The Honorary Local Secretaries will be expected to advise the Council on such matters as may be submitted to them, and to afford generally their aid in promoting the objects of the Society. They will go out of office annually, with the Council and Officers, but may be re-appointed after the annual election of the Council of the Society. Their names will be published with those of the President, the Vice-Presidents, the Council, and the Officers of the Society.—*Journal of the Society of Arts*, May 23, 1856.

putting forth of the scheme till a late period of the Session. This delay would have been fatal to its success, had it not contained the principle of life strong within it. But, notwithstanding this and other untoward circumstances, our examinations have been a great success.

It may be said, what has a Society, whose province is the encouragement of Art, Manufactures, and Commerce, to do with examinations? Now, in first place, the time has long gone by since our Society could render any effectual aid to do that which had much better be left to the influence of the laws of supply and demand, and to the individual enterprise of our merchants and manufacturers. While protection was the established principle of commercial intercourse, the encouragement of manufactures and commerce was a phrase of clear and definite meaning. But manufactures and commerce have long outgrown the confined habiliments of childhood. Though in this sense of direct encouragement, by offering prizes or medals for the importation of new products, or the opening up of out-of-the-way channels of trade, the Society can do but little, yet, in giving full play to the principle of competition, whether material or intellectual, it can accomplish much. Of this power, inherent in the Society, we cannot give a better illustration than the full development of the principle of competition in the multitudinous display of the Great Exhibition of 1851. Here the principle was brought and expanded to an extent never before known. The year of the Great Exhibition in Hyde-park has become a well-defined era in the annals of material development. Men now speak familiarly of such and such a thing as dating its origin or improvement from the year of the Great Exhibition; of some other thing perhaps as being then invented; or of something else as having then been superseded. Now that principle of competition in material things which the Society, under the guidance of its illustrious President, developed with so much energy and so much success, the Council this year have applied to intellectual things, and let no man say that in so doing we forget our duties or step beyond our province. In no other way can we so effectually cherish a taste for art, or promote the improvement of our manufactures, or the spread of our commerce, as by fostering the genius, encouraging the talent, rewarding the industry, and honouring the perseverance of those by whom the moral well-being and the material prosperity of this country may be best secured. The examinations have been eminently successful so far. The report of the Board of Examiners to the Council will be found a very interesting and valuable document. Its publication will confirm this assertion, and the Council would ill discharge their duty did they not take this formal and public opportunity to record the high sense which

they entertain of the patience, the scrupulous accuracy, and the perfect fairness with which during four tedious days, for nine hours each day, they discharged the irksome and laborious duties they had undertaken. The Society has been most fortunate in obtaining the unbought aid of men of such eminence in their respective departments. Nor must the demeanour of the candidates be passed over in silence. Their steady application and painstaking industry were observed by all, and witnessed by many with surprise. The Report of the Examiners, embracing fully the whole of the details of the Examinations, will be immediately published and circulated. The arrangements for holding the Examinations next year are now under consideration, and the entire programme of the examinations for 1857, with the Lists of Subjects and Prizes, will be made fully known with the least possible delay. If a part only of the employers of labour, **whether** manual or intellectual, who have signed the declaration of confidence in the Society, will take into their employment those young men whom we can strongly recommend, on the grounds of their industry and attainments—we do not, nor could we if we would, investigate moral character—if a tithe only of those who have signed our declaration will give employment to those who shall have passed our examinations with credit, more will have been done to promote education—more encouragement will have been given to the formation of habits of self-culture and private study, than if thousands upon thousands of the public money had been expended on the establishment of schools, and the payment of schoolmasters to occupy them. The reason is manifest—you need not go far to look for it. The moment you make tested intelligence and tried capacity, and ascertained acquirements, the only sure passports to lucrative employment and honourable position, that instant, as by the wand of an enchanter, you will have changed at once the entire aspect of the educational question in this country. It will assume a new phase. Whenever you make this the general rule, and not the occasional exception, you at the same time make every man his own schoolmaster. Learning ceases to be a luxury; it becomes a necessary of life. A boy's books become literally his bread, and he must, in short, either study or starve.

The Council have only in conclusion to add, that the financial position of the Society of Arts is one of unexampled prosperity. This is still more remarkable when we take into account that last session was in the second year of the war. Our receipts last year, from every source, were nearly £5,000. We spent upwards of £1,000 less than our income, and discharged about £1,200 of antecedent liabilities. The Royal Commissioners of the Great Exhibition have purchased the Society's interest in the Trade

Museum, collected and arranged by Professor Solly. In resigning their charge of this valuable collection of animal products to the Commissioners, the Council of the Society of Arts stipulated that it should be exhibited on favourable conditions to the public. The correspondence between the Royal Commissioners and the Council of our Society has been published, as well in the third report of the Commissioners, as in the *Journal of the Society of Arts*. The Treasurers of the Society have recommended that of this sum now receivable, £500 be appropriated towards the liquidation of the debenture debt now due by the Society, and we have every reasonable ground to hope that, long before our next annual meeting, the Society will be completely free from this debt, and that we shall have a considerable available balance at the Society's bankers. The debt of which we are speaking is one of £1000, which during the last eight years has pressed upon the finances of the Society. When you consider that this state of financial prosperity has accrued during the last year of a burdensome war, that the Society has entered with all the matured vigour of manhood on the second century of its course; while, during the first, it expended nearly £200,000 in promoting useful objects of every kind; and when we add to this, that, during all that time it neither applied for nor received a single shilling of the public money, very sure are we that the members of the Society for the Encouragement of Arts, Manufactures, and Commerce have ample grounds to congratulate themselves on the present state and future prospects of their Society.

The Secretary then read the Treasurers' Statement of the Receipts, Payments, and Expenditure during the past year, which was published in the last number of the Journal, page 531.

Mr. T. WEBSTER, F.R.S., said he had great pleasure in moving the adoption of a report so satisfactory on the state of the Society, and he believed that if the Society were carried on with the same energy with which it had been done during the past few years, the anticipations of the Report were not too sanguine as to the importance of the Society as a national institution. He much regretted that such a report should be made to so thin a meeting, and would suggest whether some means could not be taken for ensuring a larger attendance, as by holding it before the annual dinner, or at some other period of the year. It was of the greatest importance to ensure a full attendance to consider and discuss the subjects adverted to in the report, and he hoped the Council would take the matter into their consideration.

Mr. DENNIS had much pleasure in seconding the resolution.

Mr. HARRY CHESTER agreed with Mr. Webster that it was much to be regretted that a Report so satisfactory, and full of matter of such great and far-reaching interest, should have been received by so thin a meeting. The Chairman's address, at the opening of a Session, when he announced what the Council intended to do in that Session, was always listened to by an overcrowded audience; but the annual report of the Council, which described what had actually been done, was always presented to an almost empty room. It was strange that the members of

the Society should always be so anxious to know what was going to be done, and so very indifferent afterwards about it. It might be said that the absence of the members implied their confidence in the Council; but the Council wanted the active co-operation of the members, that stamp of hearty approval and interest in their proceedings which attendance at the annual meeting affords, and which is necessary to strengthen the hands of the Council in their high and onerous duties. On the present occasion the Report was a most valuable document, and dealt with matters whose importance could scarcely be overrated by any one. Although himself a member of the Council, he had had no hand in the preparation of the Report. Illness and other causes had prevented his attendance at the Council; and he could therefore speak of its proceedings as an impartial member of the Society. He felt the deepest interest in what had been done for the examination of the students of the classes of the Institutes in Union with the Society. It was an admirable beginning of a system which was calculated to do more for the Institutes, more for the interests of national education, and the reform of the service of the crown, and other services, than almost anything that had been elsewhere done. It was not to be denied that competitive examination was a hobby which some persons were riding too hard. Examination, as Mr. Ewart had said, might be carried too far—that is, too much might be expected of it. Ill-regulated, it might induce "cramming" and other evils. But, after all, it was better that man should be crammed than starved, especially if, while some were injuriously crammed, others obtained a wholesome stimulus which led them to take a nutriment which they might otherwise want, and not only to take, but digest and assimilate it. At any rate it seemed impossible that competitive examinations could be open to too great a number. If they were good, on the whole, for the student at Oxford or Cambridge, they must be good, on the whole, for the less favoured classes, for the students of the Institutes in Union with us. It was a noble object—a great national object—to bring within the reach of those poor men, a few at least of those encouragements to study, and those rewards of study, which were so abundantly open to the candidates in the competitive examinations for honourable and substantial rewards at Oxford and Cambridge, and other great seats of learning. He hoped that the Council would publish the fullest possible details of the late examinations, and especially that they would publish the examination papers—the questions, and the replies of the successful candidates. At the Conference, objections had been taken to oral examinations. In these objections he did not concur. If the examinations must be either all oral, or all paper, he would prefer the latter, as less liable to accidental failures; but the best system was a mixture of oral and written questioning, which had been adopted on this occasion by the Council of the Society of Arts. Written questioning is the best mode of ascertaining what a man knows—oral questioning is the best mode of ascertaining what he is. The best mode is a combination of the two, and it had been used by the Council with the happiest effect in the hands of a body of examiners of the highest distinction and skill, whose services had been generously given to the Society, and who deserved our warmest acknowledgments. To the Chairman of the Council, Dr. Booth, for his very vigorous and successful efforts in this matter, the Society, and, indeed, all the friends of education, were greatly indebted. While, however, what had been done was undoubtedly a very great success, the Society must not deceive itself with the notion that the wants of the Institutions in Union had been met by the late Central examinations at the Society's House. It was clearly brought out at the Conference, that the Institutions required much more; that the distant and poor Institutions could not afford to send their students to be examined in London; and that they wanted a system of examinations carried to their very doors. The only system that could

possibly fulfil that condition, was the system of examination by papers, sent simultaneously to the different places, worked there simultaneously (under proper securities against copying and other unfairness), and thence simultaneously returned to London, to be examined and decided on by a Board of Examiners. Such was the system of the Committee of Council on Education, which Mr. Bath Power had so clearly explained to the Conference. Such was the system which he (Mr. Harry Chester) had proposed in 1854; which the Council had submitted to the Conference in that year; and which the Conference, by a unanimous vote, had adopted. In 1855, however, when that system of examination was proposed to be carried out by the Council, it was not taken up by the Institutes themselves; and necessarily fell to the ground. Then it was that the vigorous mind of the Chairman (Dr. Booth) achieved the plan which had justly been described by the Council as a "great success." The Institutes, however, now desired to revert to the plan of 1854, as meeting their peculiar wants, and the great object now was to combine the two plans. This, he thought, could be effected by making the examinations on the plan of 1854 a preliminary to the examinations on Dr. Booth's plan. The Council appeared to have thought that the examinations in writing, held simultaneously in different districts, though perfectly successful in the hands of the Committee of Privy Council, which had a staff of experienced Inspectors to preside at the examinations in the several districts, might fail in the hands of the Society of Arts, which had no such officers at its command, and therefore no such means of preventing "copying" and other unfairness. It was, of course, absolutely necessary that such precautions should be effectually taken, and he thought that this Society, for an object so very important, might obtain the requisite official assistance. He was not authorised by government to say so—he spoke merely as a member of the Society of Arts—but he could not help thinking that, if applied to by the Society, the Committee of Council on Education would readily lend its 40 inspectors for two days (which would be all that was requisite), in the year, to preside at the local examinations. Then there were the Principals of the forty Training Colleges, whose zeal for education was such that he was sure they would to a man assist the Society with similar services for such an object. Here were eighty presidents of the highest competency; and there were numbers of other men, accustomed to examinations at Oxford and Cambridge, and elsewhere, whose aid would most cheerfully be given. He saw no difficulty in providing fit persons to preside at the examinations in (say) 150 different places. All, in fact, that was necessary was, to secure fairness in working the papers. They would then be returned to London; and doubtless the labour of revising and deciding on them would be very heavy and important. It should be committed to the best judges that could be found; and the Society should remunerate them very liberally for their service. From the papers which they should place in the first class, a limited few of the very best should be selected; and the authors of these should be invited, and assisted (pecuniarily), by the Society to present themselves at our house, and to undergo a higher examination, both oral and written, before our most eminent Board of Examiners; and the most successful in this competition might receive the highest honours that the Society can give, and might be appointed Honorary Associates of the Society of Arts. Such was an outline of what he thought might be done in this important matter. He commended it to the consideration of the Council, and of its Chairman, whose services were so highly appreciated in connexion with the subject of competitive examination.

The CHAIRMAN then put the motion to the meeting, when the report was unanimously adopted.

The ballot having remained open one hour, and the scrutineers having reported, the Chair-

man declared that the following noblemen and gentlemen had been elected to fill the several offices. The names in *italics* are those of members who have not filled the offices to which they have been respectively elected during the past year.

COUNCIL.

PRESIDENT.

H.R.H. PRINCE ALBERT, F.R.S., &c., &c.

VICE-PRESIDENTS.

<i>Lord Ashburton, F.R.S.</i>	<i>William Hutt, M.P.</i>
<i>Harry Chester.</i>	<i>Marquis of Lansdowne.</i>
<i>Henry Cole, C.B.</i>	<i>George Moffatt, M.P.</i>
<i>C. Wentworth Dilke.</i>	<i>Sir Joseph Paxton, M.P.</i>
<i>Viscount Ebrington, M.P.</i>	<i>Dr. Lyon Playfair, C.B., F.R.S.</i>
<i>William Ewart, M.P.</i>	<i>John Scott Russell, F.R.S.</i>
<i>The Earl Granville, F.R.S.</i>	<i>Lord Stanley, M.P.</i>
<i>Lord Robert Grosvenor, M.P.</i>	<i>Robert Stephenson, M.P., F.R.S.</i>
<i>The Earl of Harrowby, F.R.S.</i>	<i>William Tooke, F.R.S.</i>
<i>The Dean of Hereford.</i>	<i>Thomas Twining, Jun.</i>

OTHER MEMBERS OF COUNCIL.

<i>Francis Bennoch.</i>	<i>Matthew Marshall.</i>
<i>Rev. Dr. Booth, F.R.S., Treasurer.</i>	<i>John Joseph Mecham.</i>
<i>J. W. Gilbart, F.R.S., Treasurer.</i>	<i>Edward Solly, F.R.S.</i>
<i>James Glaisher, F.R.S.</i>	<i>Dr. Stenhouse, F.R.S.</i>
<i>Joseph Glynn, F.R.S.</i>	<i>Colonel Sykes, F.R.S.</i>
<i>Peter Graham.</i>	<i>George Fergusson Wilson, F.R.S.</i>
<i>John Cameron Macdonald.</i>	<i>Thomas Winkworth.</i>

AUDITORS.

William Mackrell. | *W. B. Simpson.*

SECRETARY.

Peter Le Neve Foster, M.A.

COLLECTOR AND FINANCIAL OFFICER.

Samuel Thomas Davenport.

Home Correspondence.

TONNAGE REGISTRATION.

SIR.—The following remarks are appended, in the *Mechanics' Magazine* of this day, to Mr. Atherton's letter, which was published in your number of yesterday. For the reasons mentioned in my last letter to you, I have to request that you will give insertion to them in the next number of your *Journal*.

I am, Sir, your obedient servant,

**THE EDITOR OF THE
MECHANICS' MAGAZINE.**

166, Fleet-street, London, June 21st, 1856.

"A very few words will suffice by way of reply to Mr. Atherton's letter which we have just inserted. It is a matter of very little importance, as affecting the main question at issue, whether Mr. Atherton has really been driven to occupy a different position, or whether we, in common with the great majority of those who have felt an interest in the question, have hitherto misapprehended his views, and are now for the first time acquiring a tolerable acquaintance with their true import. For this misapprehension, if such it be, Mr. Atherton has no one to blame but himself. In the original essay which has given rise to all this discussion, he attacked with such an amount of vigour what it now appears were not vital deficiencies of the present system of registration, but merely matters of inferior

moment, and sought to substantiate with such a degree of earnestness what are now represented to be the real principles of the essay, and also the several details of the system to be substituted, that it is no wonder that the public in general, not possessing the clue to the labyrinth which Mr. Atherton himself possessed in the inmost recesses of his mind, made a fatal confusion between the *essentials* and *non-essentials* of the new system.

"Mr. Atherton ought to feel himself under deep obligations to us for having furnished him with the opportunity of explaining this important distinction. And, notwithstanding his good-humoured deprecations, we really do congratulate him on the number of points which seemed to us, and to the uninitiated in general, settled in the new system, but which are now consigned to the more uncertain regions of 'consultative deliberation.' However, as we said, it is a matter of little moment whether Mr. Atherton or ourselves appear in the character of converts and recruits. In the same spirit in which he has come forward in his last letter we are willing to meet him.

"With regard to the enormous difference of real carrying capacity which Mr. Atherton tells us may very well exist between two ships of the same nominal registration of 1,000 tons, we think he has done well in restricting his observations to the case of the vessel which he supposes may well afford to carry 3,000 tons of *dead weight* cargo, and in omitting altogether the case of the unfortunate vessel which cannot get beyond its 500 tons.

"The cellular principle of build will doubtless admit of a great difference between the external and internal *displacement* of a vessel; but it is much to be questioned whether the disadvantages of this disproportion are not so much greater than the advantages as to render the internal measurement of the tonnage fair in a fiscal point of view. Merchants are much more anxious to obtain a vessel that will carry a great bulk, with comparatively small weight, than one that will carry a great weight with little bulk; for the greater part of cargoes of goods—especially the more valuable kind—are specifically *lighter*, not *heavier* than water; and internal roomage is, on the whole, in a commercial point of view, more valuable than external displacement. We fully expected that Mr. Atherton would refer to the cellularly-built iron ships as cases in point. But we really believe the great disproportion of the internal to the external measurement of the Leviathan ship now building on that principle, will be felt by the owners as a great mischief; they will, of course, wish to carry a mixed average cargo; and to fill their hold with a heavy cargo would neither be very practicable nor conducive to their own interests. We believe that to charge them with dues for more than the internal roomage would be unjust.

"On the other hand, be it remembered that the *internal* roomage divided by 100 is the legal tonnage of a vessel; 35 cubic feet of sea-water weigh a ton; consequently, 1,000 tons of dead weight carried aboard a vessel of 1,000 tons registered tonnage, would only cause a displacement of 35,000 cubic feet, whereas the whole *internal* (not external) roomage is 100,000 cubic feet. We are certainly, therefore, well within bounds when we assert that there can be no doubt that every ship of 1,000 tons register may fairly be expected to carry at least 1,000 tons weight of goods.

"We have offered no opinion on the mode in which the allowance is made for the space occupied by the engine and boilers on board steam vessels by the present law, nor on the justice and propriety of making this allowance at all. We believe the owners of sailing vessels generally feel this part of the law as a great grievance; and we are, on the whole, disposed to concur in this opinion, which seems also to have been shared by the Tonnage Commission of 1849.

"The legislature have undoubtedly always looked upon tonnage registration simply from a fiscal point of view; and by removing all temptation to owners to procure vessels to be built of a bad form—as they have certainly done by the new law—they have rendered an essential service to the cause of science which it were ungrateful to deny or overlook, still more to treat as a misdemeanor and a crime.

"Mr. Atherton states that our notions as to his views on the question of external-*versus* internal measurement for tonnage have been completely at fault, and he expresses a hope that by his explanation he has now established a concurrence of opinion between us. As we hear no more of his French mode of measurement for fiscal purposes, and of his continued product of two external dimensions and one internal, corrected by an empirical factor, which, together with the whole *detail* of the new system of measurement he proposes, is consigned to the regions of 'consultative deliberation,' this may possibly be the case.

"Of this, however, let him be assured, that we, in common with all the practical men who have spoken out on this question, are satisfied that the levying of dues and tolls on the nominal tonnage, calculated in accordance with the law of 1854, is as fair as can reasonably be expected, and that we will be no parties to any agitation which may have for its object the repeal of the rule as now by law enforced. We are satisfied that, a 'reasonably fair enactment' being now in force, infinite harm will be the result of any serious attempt to unsettle it; and all the advantage which some enthusiasts anticipate from a change would be found futile.

"If, therefore, we consent to follow the guiding of 'Coryphaeus, the agitator' (and we by no means wish to decry all agitation as an evil), and give in our adherence to the principle of remitting any questions connected with shipping registration to the action of 'consultative deliberation,' they must be entirely by way of *addition to—not of alteration of—the registration clauses of the Merchant Shipping Act*, so far, that is, as sailing ships are concerned. We should have no objection to see—or rather we should say we should see with satisfaction—a competent committee appointed by the government—or by the British Association, or some other scientific society in the first instance, with a view of ultimately, if need be, acting on the government,—to take into consideration the following points:

"1. Whether, it being conceded that there is a limit beyond which it is dangerous to load ships, it is *possible* to assign that limit for every ship by interference of government, without running unnecessary risk of limiting or cramping the progress of naval architecture, or inflicting commercial injury.

"2. In case this should be answered affirmatively, by what means the determination of such limit may be effected.

"3. Whether, without undue interference with the freedom of action of shipowners and shipbuilders, and the consequent discouragement of improvement in the building of merchant ships, it be *possible* or advisable to acquire the registration of any other elements of construction which may be interesting and beneficial in a scientific point of view.

"Now, if Mr. Atherton will only limit his agitation to the appointment of a committee, and that a competent committee, of gentlemen, not nominated by one or two individuals, but fairly selected, either for their scientific or practical knowledge of the subject—such a committee as must command the respect of the shipping interests—to consider and report upon the points stated above, he will have our cordial concurrence. If, however, he agitates for the upsetting of the fiscal arrangement for levying dues which now, after many years, at last seems settled upon a fair basis, he as assuredly will meet with our opposition.

"We now come to Mr. Peake's rule, in our remarks upon which we must include all that we have to say in reply to both the gentlemen who have addressed us on this part of the question.* It appears that the only *published* rule of Mr. Peake's is that of which we gave a brief outline to our readers in our last week's Number, and Mr. Atherton expresses his belief that it will be more highly appreciated by us when better understood than at present, and Mr. Peake himself says, that in our judgment of its value we have been 'grievously misinformed,' for throughout the little work in which it is contained there is 'no restriction to the curvilinear portions of the sectional areas being divided into triangles and curvilinear areas to any extent, leaving actually no deficiency in measurement; and to obtain the greatest distance between the two chords and the curve by trial, is evidently a matter of manipulation.'

"Now, as far as regards the *simplified* method of calculating the area of sections, as developed in the little work in Weale's Series, one definite method, and one only, viz., that which we laid before our readers, was proposed. By this the area is divided into two triangles and two curvilinear portions, which are assumed to be parabolas. No hint whatever is given of the propriety or advisability of dividing it into a larger number of triangles and curvilinear portions.

"We think, therefore, that the great bulk of the readers of that little work, who are supposed to be beginners like ourselves, would rise from the study of it with the impression that it was essential to the simplicity of the rule that the area should be divided into two triangles and two curvilinear portions, and no more. As far, therefore, as any *published* rule of Mr. Peake's is concerned, we cannot allow that we have been grievously misinformed; and we cannot withdraw our remarks on the rule as *published* in the little book in question.

* This is in allusion to a letter from Mr. Peake, the Assistant Master Shipwright of her Majesty's Dockyard, Woolwich. The purport of this letter (which is published in the *Mechanics' Magazine* of this day) will be gathered from our remarks upon it.—ED. M. M.

"It seems, however, that since Mr. Atherton has been devoting his attention to the correction of the principles of shipping registration, Mr. Peake has been applying himself to the simplification of the details of the actual measurement. He has sent us a little book, of 22 small pages, in which his efforts to attain this desirable end are developed. This little book, however, is not published, but only privately printed; and it would seem that Mr. Atherton's remarks really alluded to the extension of the former method, as set forth in this book.

"Mr. Peake expressly informs us that his sole object in this little treatise is, to *simplify* the method of calculations, so as to bring it more within the acquirement of the novice than Sterling's rule.

"How is this object supposed to be effected? By a series of independent calculations for each transverse section, which substitutes triangles for trapeziums, and a series of parabolic areas, all of which have to be calculated separately.

"If the calculations on Mr. Peake's principle be correctly made, they ought to produce a result identically the same as that given by Sterling's rule, for the principle of calculation is identically the same.

"We have already shown how any one, possessed of a very moderate amount of geometrical knowledge, may convince himself, with the greatest ease, of the close approximation which Sterling's rule gives him to the area of a curve. All the information he was supposed to bring with him for that purpose, was the common expression for the area of a parallelogram and that for the area of a triangle.

"Mr. Peake's requires his tyro to be further cognizant of the expression for the area of a portion of a parabola. To have an intelligent knowledge of this, the student must know something of the theory of limits, either geometrically or analytically. He must, therefore, be further advanced to understand Mr. Peake's than to understand Sterling's rule.

"Every transverse section of Mr. Peake's method is divided into one parallelogram, several triangles, and several parabolic areas, each of which has to be calculated separately.

"Take the example which he gives—the *Coquette*, and her midship section. His method, first of all, requires the curve to be laid down accurately to a scale. It is then divided into a parallelogram, three triangles, and three parabolic areas; to do which, eight lines have to be drawn, and three others estimated by aid of the compasses; and, of course, five independent calculations must be made.

"To perform the same operation by Sterling's rule, five, or at most seven, breadths, must be measured at equal intervals; and the rule is applied at once by four operations, as has been shown.

"Besides, for the purposes of tonnage admeasurement, there is an important difference of simplicity in the plans. By the authorised rule, the officer entrusted with the duty has only to enter his measurements in a book. By Peake's rule, besides the number of independent calculations to be made, he must first make a delineation to a scale of the length of the vessel, and then of the depth of the several transverse sections, and to each depth as a base line set off the line form of the section (the most accurate mode of doing which is by ordinates), and after all this he must draw his eight independent lines and estimate his three others.

"How any one can seriously propose this as a more simple and more intelligent rule than Sterling's, and one better adapted to a novice, passes our comprehension! In point of correctness the rules are on a par.

"We have no wish to depreciate either Mr. Peake's or Mr. Atherton's labours; but really, when the object sought is simplicity, and so much parade is made of the wonderful improvement which Mr. Peake's mode is upon Sterling's in this respect, our risible faculties are excited, and we are forcibly reminded of Horace's well-known line, *Parturient montes; nascitur ridiculus mus!*"

The following reply has been addressed by Mr. Atherton to the Editor of the *Mechanics' Magazine*:

Woolwich Dockyard, June 23rd, 1856.

SIR,—In your editorial article on "Tonnage Registration," published in the *Mechanics' Magazine*, No. 1715, in connection with my letter of the 17th instant, inviting the Editor of the *Mechanics' Magazine* to announce his decision, "and take a decisive part, either in upholding our shipping registration system as it now is, or declare himself an advocate for its amendment," you have now most satisfactorily, because plainly, responded to this

invitation, by declaring your views as follows:—"If we consent to give in our adherence to the principle of remitting any questions connected with shipping registration to the action of 'consultative deliberation,' they must be entirely by way of *addition* to, not of *alteration* of, the registration clauses of the Merchant Shipping Act, so far, that is, as sailing ships are concerned."

Then, as to the registration of steamers:—"We believe the owners of sailing vessels generally feel this part of the law (referring to the exclusive measurement of steamers) as a great grievance, and we are, on the whole, disposed to concur in this opinion, which seems also to have been shared by the Tonnage Commission of 1849."

Then again, conclusively—"We should have no objection to see, or rather we should say, we should see with satisfaction, a competent Committee appointed by the Government, or by the British Association, or some other scientific Society, in the first instance, with a view of ultimately, if need be, acting on the Government to take into consideration the following points."

These declarations, by the Editor of the *Mechanics' Magazine*, constitute grounds on which this discussion on Tonnage Registration ought, on my part, to be brought to a conclusion. I regard these declarations as displaying the candour, judgment, and desire to serve the public in the cause of science, which have always characterised the editorial conducting of the *Mechanics' Magazine*; and thanking you, the Editor, for having given publicity to, and now so powerfully confirming my exposition of the deficiencies of our present system of Statistical Shipping Registration,

I am, &c.

CHARLES ATHERTON.

MEETINGS FOR THE ENSUING WEEK.

THURS. Zoological, 3.
SAT. Asiatic, §. Lt.-Col. Sir. H. C. Rawlinson, "On the City of Babylon."

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.
Delivered on 14th and 16th June, 1856.

- Par. No. 193 (1). Pimlico Improvements—Copy of Report.
193 (2). Spitalfields Road—Copy of Report.
238. Railways Companies—Returns.
273. Malt—Return.
274. Supply—Account.
279. Army—Supplementary Estimate.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[From Gazette June 20th, 1856.]

Dated 22nd March, 1856.

689. Charles Carey, 32, Union-grove, Wandsworth-road—Improvement in omnibuses.
Dated 23rd April, 1856.
969. Isaac and George Myers, Rotherham—Improved "fire-lighter."
Dated 25th April, 1856.
997. Robert Lakin, Stretford, Lancaster, John Thompson, Edward Gerrard Fitton, and Frederick Alexander Fitton, Ardwick, Manchester—Improvements in or applicable to certain machines for preparing and spinning cotton and other fibrous substances, some of which improvements, relating to apparatus for lubricating, and to the construction of studs, are also applicable to machinery for other purposes.
Dated 13th May, 1856.
1123. Alexander Parkes, Birmingham—Improvements in the use of collodion in photography.
Dated 14th May, 1856.
1145. William Evans, Sherston, Malmesbury—Improved description of plough.
Dated 16th May, 1856.
1160. Joseph Martin, Liverpool—Improvements in machinery for draining or partially drying certain descriptions of wheat and other grain.
Dated 21st May, 1856.
1199. Robert Pemberton, Hildenborough, Tonbridge—Improvements in barrel organs.
Dated 23rd May, 1856.
1236. John Gedge, 1, Wellington-street South, Strand—Improvements in the means of adjusting the parts of ladies' dresses called "crinolines" and "sousjupes." (A communication.)

Dated 2nd June, 1856.

1299. Gustavus Gidley, 14, Clinger street, Hoxton, and William Christopher, 2, Oak Villa, Pinney—Reducing the bottle or imported India rubber to a transparent liquid state, so that it may be used as a transparent varnish or solution for mixing with colours.

1307. Delia Avery, Essex-street, Strand—Improvements in the construction of bonnets and other coverings for the head.

1312. George Hallen Cottam and Henry Richard Cottam, St. Pancras iron Works, Old St. Pancras-road—Improvement in the manufacture of iron hurdles.

Dated 4th June, 1856.

1325. Thomas Morris, Bunney, Nottingham—Improved trap for beetles and other insects.

1326. Frederick Albert Gatty, Accrington—Instrument to be used in lighting and holding matches or vesta lights.

1327. Adam Bullough, Blackburn—Improvements in the mode or method of leasing warps.

1328. William Potts, Handsworth—Improvements in sepulchral monuments.

1329. Reuben Boyce Wigley, Birmingham—Improved method of attaching handles to coffins.

1330. Edward Hatton, Birmingham—Improvements in the manufacture of plain and ornamental metallic tubes.

1331. Duncan Morrison, Bordesley Works, Birmingham—Improvements in the manufacture of metallic bedsteads and other articles to sit or recline on.

1332. Charles Louis Marle, Hotel du Continent, 46, Leadenhall-street—Improvements in preserving animal and vegetable substances suitable for food.

1333. Duncan Morrison, Bordesley Works, Birmingham—Improvements in the manufacture of articles from malleable cast iron.

1334. John Christophers, Heavitree, Devon—Improvement in knives and forks whose handles are not metallic.

1335. Richard Archibald Broome, 166, Fleet-street—Improvements in plating glass to render it reflective. (A communication.)

1336. William Smith, 82, Margaret street, Cavendish-square—Improvements in apparatus for regulating the supply of air to furnaces.

1337. Alexandre Louis Gibon and André Fröhlich, 39, Rue de l'Échiquier, Paris—Improvements in economising fuel in the treatment of metals.

Dated 5th June, 1856.

1338. John Betts, Strand—Improvements in the preparation or manufacture of artificial spheres.

1339. John Norris, Jun., New York—Improvements in the manufacture of the cutting tools employed in nail making machines. (A communication.)

1340. Jules Le Breton, 18, King's Arms Yard, Coleman-street—A photo-gas or apparatus, with air draughts of hot oxygen when applied to oil lamps, with wicks for lighting and heating. (A communication.)

1341. Andrew Edmund Brae, Leeds—Improvements in apparatus for communicating signals from one part of a railway train to another.

1342. Archibald Sinclair, Birmingham—Improvements in wrought-iron pins for railway chair fastenings.

1343. William Watson Hewitson, Headingley, near Leeds, and William Hamond Bartholomew, 16, Brunswick terrace, Leeds—Improvements in the construction of the furnaces or fire-boxes of tubular steam-boilers.

Dated 6th June, 1856.

1345. Duncan Lang, Greenock—Improvements in obtaining and applying motive power.

1346. Joseph Robinson, Jun., Hyde, Chester—Improvements in railway chairs, or in means for securing rails thereto.

1347. Charles Beyer, Gorton, near Manchester—Improvements in locomotive engines.

1348. Robert Harlow, Stockport—Improvements in the construction of water-closets, and in valves or taps for water-closets and other purposes.

1349. James Somerville, Glasgow—Improvements in weaving.

1350. Charles Durand Gardissal, 10, Bedford-street, Strand—Improvements in machinery for extracting fibrous and other products from vegetable substances. (A communication.)

1351. John Juckes, Dame-street, Islington—Improvements in the furnaces of locomotive boilers.

1352. Thomas Chambers, Junr., of Colkirk, Fakenham—Improvements in agricultural drills.

1353. Peter Armand le Comte de Fontainemoreau, 31, Rue de l'Échiquier, Paris—Improvements in heating water for steam boilers. (A communication.)

1354. Alfred Vincent Newton, 66, Chancery-lane—Improvements in rotary engines. (A communication.)

1355. Paul Ellison, St. Helen's, Lancashire—Improvements in furnaces, and the mode of working the same, for the manufacture of black ash or crude soda.

Dated 7th June, 1856.

1356. Adam Stamm, Buenos Ayres—Improvements in presses for packing, parts of which improvements are also applicable to other presses.

1357. Alfred Vincent Newton, 66, Chancery-lane—Improved furnace for heating soldering irons. (A communication.)

1358. William Edward Wilcy, 34, Great Hampton-street, Birmingham—Improvements in the manufacture of metallic pens and penholders.

1360. Samuel Dyer, Bristol—Improvements in reefing, furling, and setting the sails of ships and vessels, also for protecting such sails from wet and other abuses caused by ropes and rigging.

Dated 9th June, 1856.

1361. Alexander Robertson, Dublin—Improved inkstand.

1362. Joseph Bennett Howell, Sheffield—Improvements in the manufacture of cast-steel tyres for railway locomotive engine and carriage wheels.

1363. Charles William Siemens, 7, John-street, Adelphi—Improvements in engines wherein superheated steam is used.

1364. William Field and Edward Jeffreys, Shrewsbury—Improvements in machinery for sewing seed and for distributing manure.

1365. Robert Ferrier, Jedburgh—Improvements in machinery or apparatus for sweeping and cleansing roads and streets.

1366. James Holdin, Manchester—Improvements in machinery or apparatus for washing rags, which said improvements are also applicable for washing other materials.

1367. James Holdin, Manchester—Improvements in machinery or apparatus for bowking, bleaching, dyeing, and washing textile fabrics or materials.

1368. John Ellis, Heckmondwike—Improvements in the manufacture of muriate of ammonia and carbonate of ammonia, and in converting certain ingredients employed therein, into an artificial manure.

1369. Benjamin Smith and William Kalhoff, Gemund, near Cologne—Improvements in economizing fuel in locomotive and other steam engines.

1370. Richard Archibald Broome, 166, Fleet-street—Improvements in ladies' wearing apparel. (A communication.)

Dated 10th June, 1856.

1373. Thomas Skafte, Vanbrugh-house, Greenwich—Spring folding camera shutters for the more speedy and convenient mode of taking photographic pictures than has been hitherto adopted.

1375. Richard Archibald Broome, 166, Fleet-street—Improvements in printing shawls and other fabrics, and in the machinery employed therein. (A communication.)

1379. Charles Rowe Cheshire and Joseph Betteley, Liverpool—Improvements in the manufacture of anchors.

1381. Alfred Vincent Newton, 66, Chancery-lane—Improvement in projectiles for ordnance. (A communication.)

INVENTION WITH COMPLETE SPECIFICATION FILED.

1410. Hector Grand de Chateauneuf, Paris—Improvements in apparatus for washing and bleaching clothes and other materials, to be called "the steam washing lixiviate."—14th June, 1856.

WEEKLY LIST OF PATENTS SEALED.

Sealed June 20th, 1856.

2891. Bernard Hughes.

2892. Matthew Tomlinson.

2893. Charles James Appleton.

2903. William Stevenson and William Crawford.

2908. David Dick.

2952. Sir John Scott Lillie, C.B.

25. Colin Mather and Charles Millward.

109. Samuel Sheppard.

142. François Jules Manceaux.

205. Gentle Brown.

775. Thomas Waller Burrell.

851. William Edward Newton.

869. James Burnside.

905. Frederick Priestley.

917. Lianna Mesure.

941. Thomas Wilkes.

963. Christopher Nickels and James Hobson.

Sealed June 24th, 1856.

2925. Charles May and Edward Alfred Cowper.

2927. Edward Alfred Cowper.

2943. Herbert Redfern.

2949. Silvester Lees and Edward Lees, and George Henry Newton.

June 16th.

1572. James Tatlow and Henry Hodgkinson.

June 17th.

1488. Thomas Adamson and William Adamson.

1515. Charles Cowper.

1582. William Tasker.

June 18th.

1484. Henry Saunders.

1503. Wm. Boggett and George Brooks Pettit.

1525. Charles Topham.

June 19th.

1504. Wm. Hodgson and Henry Hodgson.

1537. George Sands Sidney.

June 20th.

1505. John William Perkins.

1555. John Mason and Luke Ryder.

June 21st.

1531. Peter Armand le Comte de Fontainemoreau.

1583. Richard Bradley and William Craven.

PATENTS ON WHICH THE THIRD YEAR'S STAMP DUTY HAS BEEN PAID.

June 16th.

1572. James Tatlow and Henry Hodgkinson.

June 17th.

1488. Thomas Adamson and William Adamson.

1515. Charles Cowper.

1582. William Tasker.

June 18th.

1484. Henry Saunders.

1503. Wm. Boggett and George Brooks Pettit.

1525. Charles Topham.